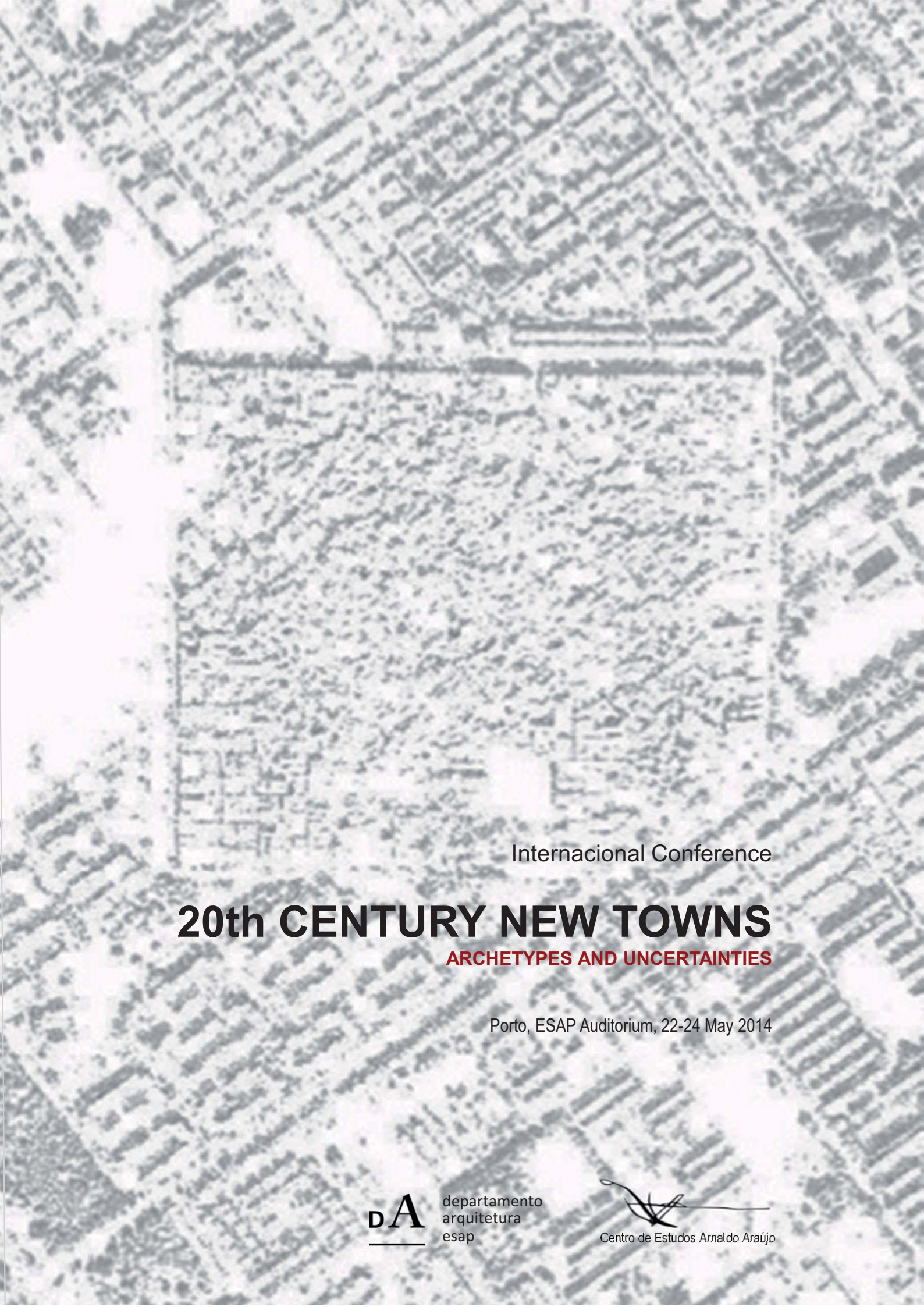

Internacional Conference

20th CENTURY NEW TOWNS

ARCHETYPES AND UNCERTAINTIES

Porto, ESAP Auditorium, 22-24 May 2014

DA departamento arquitetura esap

Centro de Estudos Arnaldo Araújo

20th CENTURY NEW TOWNS
Archetypes and Uncertainties

Conference proceedings

Edited by
Paolo Marcolin and Joaquim Flores

DARQ| Departamento de Arquitectura
CEAA| Centro de Estudos Arnaldo Araújo (uID 4041 da FCT)
Escola Superior Artística do Porto (ESAP), Porto, Portugal
May 22-24, 2014

Title:
20th Century New Towns. Archetypes and Uncertainties. Conference Proceedings.

Editors:
Paolo Marcolin & Joaquim Flores

Grafic design:
Joana Couto

Design of the cover:
Paolo Marcolin

Edition:
CEAA | Centro de Estudos Arnaldo Araújo
DARQ | Departamento de Arquitectura
Escola Superior Artística do Porto

Property:
CESAP | Cooperativa de Ensino Superior Artístico do Porto

Impressão e acabamento:
CEAA | Centro de Estudos Arnaldo Araújo
Porto, Portugal

1st edition, Porto, May 2014
Print: 200 CD Rom copies
ISBN: 978-972-8784-57-7

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20th CENTURY NEW TOWNS
Archetypes and Uncertainties

The planning and settlement of new towns were originated by different reasons. In twentieth century cities perhaps the largest reason was to determine new territorial and urban planning structures that would allow a better organization of the territory, ensuring the development of more efficient and balanced socio-economic models.

In some cases the construction of these cities was inspired by the principles of the nineteenth century English utopias, reflecting a strong concern in integrating the urban and natural components and highlighting the role of the natural landscape, understood as a city matrix on which articulates the urban structures.

In other cases the inspiration come from the rationalist ideals of the modern movement, seeking to personify the idealistic and democratic spirit of a new world order, producing rational and functional solutions and even if sometimes they do not fully overcome certain obstacles, an important contribution to the urban and architectural theory and practice advance was made.

Furthermore, other cases relate to the post-modernism and the emergence of critical views of the modern movement. These towns were born to give an answer to the problem posed by the large settlements deindustrialization and de-urbanization, assuming the role of organized urban extensions needed for controlling the sprawl of existing cities which was made through a process of unordered and peripheral urbanization.

Some focused mainly on a completely physical, economic and administrative independency in relation to major urban centres. Others, even if based partially on these principles of independence and geographical isolation, were planned as secondary structure networks dependent from a main urban conurbation. Many of these experiments have already been object of diversified studies addressing more or less specific thematic areas, seeking to define and apply critical and analytical methodologies to better understand and decode the processes and design criteria that were the basis of their urban and architectural morphologies.

Opting for an analytical prospective directed to re-contextualizing the urban and architectural contributions of these experiences, the conference 20th century new towns – archetypes and uncertainties aims to discuss their real effects in the present being especially welcome papers focusing on the following two aspects:

I. Archetypes | Spatiality, materiality and identities which persisted over time, not only because they have a high symbolism or because they are the emblematic testimony of a precise thinking about how to re-understand the city in a particular historical moment, but also and especially to continue maintaining the answering capacity to functional and practical demands of contemporary society. They are, in short, realities that did not required significant or radical changes to fulfil their function properly. The reasons for these archetypes remaining active and appropriate may contribute to

recognize them as meaningful and timeless, distant from temporal gestures which respond only to contemporary needs.

II. Uncertainties | Parts or components of the urban system that remained incomplete, leading to realities that persisted "open" or that were completed through different intentions, appropriation processes or intervention criteria from those planned in their original design. The nature of these uncertainties could be a further indicator of the effects produced by these archetypes in the city development.

Additionally the conference will focus three main thematic/panels covering the post-war satellite towns (as the New Towns Programme and other European similar experiences), the modern cities (as Brasilia or Chandigarh) and a more local perspective embarking the Lusophone New Towns (mainly in Lusophone Africa, but also in Brazil). The conference peer-reviewed call for papers will cover these topics and the communications will be organized under the respective panels, not excluding the possibility of accepting other related topics if they reveal pertinent for the global aims of the conference.

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NEW TOWNS AS FRAGMENTARY URBAN PROJECTS.
From 'Barcelona's Ensanche' to 'Madrid's Linear City'

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Abstract

New towns projects aren't just delimited ass spatial entities devised to take up a territory which has lacked of any kind of urban existence until that moment. That is, they go beyond its colonial meaning and aim at emphasizing a territory, whether in economic or representative-politic terms. A new town, conceived as a unitary project, can also express itself as a theoretical and far-reaching proposal. Thus, town is considered as a whole, even though the degree of spatialization only affects an urban fragment limits. It is with this conception that nineteenth-century Ensanches at Mediterranean towns and Madrid's Linear City, for example, were planned. These proposals are intended to be incorporated to an existing town, continuing with a more classical tradition linked with "New Towns" project. Both of them combine its nature of fragments, contribute to existing towns' urban development, and establish themselves as alternatives to that one at the same time. That's why they are understood as "New Towns". It is not necessary to start from the beginning to think that we are designing a new town project. The really important thing is not so much the suggestion of a new urban entity, but the theoretical-disciplinary approaches accompanying and giving sense to the specific urban project, even if their parameters are limited to a new fragment which should be included in the existing town. This was the sense of nineteenth-century Ensanches, devised as town projects which are alternative to the existing one, complementing its native spatial elements and expressing "New Towns". The same applies to Madrid's Linear City designed by Arturo Soria. We are going to analyse both urban alternatives, focusing on their effects and influence on "New Towns" projects, including those which mention concrete urban fragments during the twentieth century.

Keywords: Barcelona *Ensanche*, Madrid Linear City, New Towns

The analysis and comprehension of proposals of new towns performed during Twentieth century means to relate its parameters, as designed entities, to Howard's premises when he devised its "model" of Garden-city over a century ago. We consider that this "model" is the one which more firmly defines the programmatic points of Twentieth-century New Town project. This "model's" original form and content advocates the town as it will exist many years later. Even, it plans ahead for the concept of "metropolitan-city", such as it was being consolidated during the late 60's.

Hypothetically, the Garden-city proposed paves the way for new urban conceptions from two different perspectives: as *New Towns*, and also as *Fragments* incorporated to the existing town. In this way, we can perceive that both alternatives share the same principles. Nevertheless, the second option's ones will cause a larger impact. This way, we understand the interpretation of *Garden-city* as *Garden-suburb*, that is, like a fragment of the city in its all, conceived in America in the 20s, for example. This interpretation was linked with Clarence Stein's work[1].

Which programmatic bases do appear in Howard's model of Garden-city? Howard's work was first published towards 1898, "*Tomorrow: A peaceful path to real reform*". Its second edition appeared in 1902 with a new title, "*Garden Cities of Tomorrow*"[2]. His pretensions were not to define the spatial bases of a new "urban model", but to identify its implementation possibilities. Garden-city principles have been excessively synthesised as the meeting point bringing together the best of town and countryside, which is explained by the well known theory of "*The three magnets: country, city, city-country*". Regardless of these abuses, three aspects summarise the really important thing of this "territorial model": *limits of growth*, *decentralization* as a spatial commitment and its *private-cooperative management*, which paves the way to devise the town as a business.

For all that, Howard collects and rationalises previous ideas and experiences. For instance, he gathers from Company Towns, their *decentralised systems* nature, their *self-sufficiency* and their internal correlation between *housing-services-industry*. A new diagram considering a town "*…designed for healthy home and industry; having a size which enables high levels of social living standards;*

[1] Stein, C.S. "Toward New Towns for America". Cambridge, Mass. MIT. 1973.
[2] See French edition, with an introduction by L. Munford and preface by F.J. Osborn, "Les Cité-Jardins de demain". París, Dunod, 1969.

surrounded by an agricultural belt; and a town where which land is public property or community's joint ownership"[3].

The second proposal regarding New Town projects, even if it is previous in time, is the Ensanches de Población one. These ones were designed for Mediterranean towns during the second half of Nineteenth century, highlighting the Barcelona's Ensanche designed by the engineer Ildefonso Cerdá in 1859.

Historically speaking, there is no evidence of the role played by the Ensanches as a precedent of *Garden-city* "model", nor, consequently, of the fact that Howard could know Ildefonso Cerdá's "*Teoría General de La Urbanización*"[4]. Nevertheless, it takes up our attention that both proposals share several similarities when dealing with the designed object. We are mainly referring to the idea of *decentralization* –a global idea in Garden-city, a residential one in Ensanches - and to land management. In this latter procedure, both try to avoid the generation of added values which are not controlled by the owners involved in the construction of the new town.

This approach of concepts allows us to think about the cultural context in which one and the other proposals were developed, as well as about its role as ideological support redirecting the construction of the capitalist city in the Europe of the late nineteenth century. These connections were possible because of "planners'" ideology. Indeed, all of them were proposing the City of Capital, but incorporating, in each case, the appropriated improvements to avoid the imbalances that industrialization had originated. Both insisted on preventing excessive speculation, at the same time as a new spatial distribution was being emphasized. This new distribution, whether that is called "decentralization" or "extension", was paving the way for the segregated, zoned, decentralized town. In short, the city built by capital.

[3] See Sica, Paolo. "Il Regno Unito. Howard e il movimento per la Città Giardino". In "Storia dell'Urbanistica. Il Novecento". Roma-Bari, Laterza, 1978, page 7 and followings.
[4] Cerdá, I. "Teoría General de la Urbanización", Facsimil edition, Madrid, Instituto Estudios Fiscales, 1971. In charged of edition, Fabián Estapé. The first edition dates 1867.

In this way, we could repeat Sica's arguments when he states that Howard "*…takes a social system based on free initiative and benefit for granted…, making an effort to correct the imperfections which capitalist development has introduced in spatial organization*"[5]. Therefore, since then, the term "garden city", or "garden suburb", would extend to planned developments projects in general. The term, used indiscriminately, will not necessarily relate to Howard's model of decentralization, neither to a specific type, nor to the initiative dimension, nor to the cooperative training. Apart from Howard's failures, his achievement has been to state that town consists of a set of zones requiring a number of services. If these ones consist on individual or collective housing quarters has little relevance. Until that moment, city had been devised as a compact and inarticulate area. The growth of industrial city had removed any intermediate item. Howard would try to eliminate this gap depending on a hierarchy of urban units. In this way, he considers modern neighbourhood bases, breaking down traditional city into independent and separate fragments. And this is exactly what approaches the idea of Garden-city to the original concept of Ensanche. With the exception that it is in the Ensanche projects where, hypothetically, first appeared these questions; where the general principles that would promote the project of capitalist city, either as a "new town" or like fragments incorporated to the existing, were established.

In fact, Cerdá stands up for "*urban expansion*" in front of "*concentration*" in the "*Teoría General de la Urbanizació*n". To some extent, this connects and anticipates the concept of "*decentralization*" that Howard would defend later. As Soria y Puig indicates, "… *Cerdá's research aims at verifying the hypothesis that an excessive concentration was the main cause of social ills. "Excentrization" and to decrease of population from that anthill where humanity is living crowded*, *had to be done: to "ruralise" town*."[6]. "*Elsewhere the town is invading the country: here the country must invade the town",* says Howard. The "*Three Magnets*" theory in which Howard based his proposal for a Garden-city, a

[5] Sica, Paola. Op. cit.
[6] See Soria y Puig, A. "Ildefonso Cerdá, hacia una Teoría General de la Urbanización". Madrid, Turner, 1979.

decentralized, spread on countryside town, is not very different from Cerdá's support to the immersion of city in countryside.

Anyway, what these proposals have in common is, perhaps, that idea of "neighbourhood", urban fragment, as the reference for the project. Howard considers the "neighbourhood" a consequence rather than a starting point, while this "neighbourhood" defines the original logic of the Ensanche's creative process. We are talking about the most obvious spatial reality that has defined, since then up to nowadays, the main "urban creation", that is, the urban unit. This one brings together a concrete sociological structure, whether "neighbourhood" or "neighbourhood unit".

We are not treating the "neighbourhood" in its modern meaning, that is, a "neighbourhood unit" that directly relates "social space" and "urban form", as proposed by Clarence Stein[7]; but as a result which provides the designed town with a concrete "sociological structure". This structure is expressed through the spatial spread of a sort of "urban services" organized in a hierarchy depending on the number of inhabitants they address. It is this link between "amount of services" and "number of inhabitants" what inspires us to consider a first hierarchy which initially does not imply a closed structure or a strict zoning. "*Absence of zoning in Cerdá's Plan*", Bordoy Alcántara says; and he continues "*Although Cerdá did not think of the neighbourhood as an urban unit, we notice a sociological structure in the Ensanche. Under the presidency of a parish, he grouped units not exceeding 25 ha with a population approaching 10000 inhabitants. Markets cover circular areas within a radius of 900 metres. Parks are distributed in such a way that the distance from anywhere to some of them does not exceed 1500 metres. He moves hospitals outside the Ensanche*"[8]. In this way, Cerdá organized the Ensanche not so much as the sum of neighbourhoods but as a served urban structure. Anticipating plans that are similar to the ones observed in the model of Garden-city.

[7] Stein, C., op. cit.
[8] Bordoy Alcántara, E. "Principios del Urbanismo en el Plan Cerdá".

Hypothetically, both assumptions –the one referring to the Ensache and the Garden-city one- would appear as trials and references which pave the way to new urban conceptions, foreseeing the Twentieth-century "New Town" projects. In theory, New Towns are set out from the project that pretends to be innovative, like the drafts of Le Corbusier, or from the reality planned. In this later case, we would meet several cases: twentieth-century new political and administrative capitals, urban decentralized alternatives with regards to existing urban agglomerations; new towns in the context of a revolutionary, social-productive alternative; or just current territorial colonization aiming to underline new territories in which most conflictive social groups are being segregated, or to create exclusive class settlements.

Our hypothesis is that both proposals would allow the development of other theories regarding the creation of new towns. Among these theories, which have emerged from the extension of the proposals' original principles and also by dialectical confrontation, the project of *Linear City*[9] designed by the engineer Arturo Soria y Mata stands out. It consists on a new urban design, although, as it is intensely connected with the city of Madrid, it oscillates between its status as a new kind of urban settlement and its final expression as a peripheral area with certain autonomy. This project was issued some years earlier than the first text of Howard, what turns Soria y Mata into a pioneer in its field. It should be noted that, as Howard's idea was expressed in the context of a proposal-project which was totally issued –the Garden-city-, Linear City appeared fragmented, diversified in time. Indeed, although Linear City is previous to Garden-city, Arturo Soria's theories prove that he perfectly knew Howard's thinking. In fact, following Arturo Soria's disciplinary path, we could argue that it was its head-on opposition to Garden-city what paved the way to the definition of Linear City basis. Thus, it is well-known his statement regarding his vision of the Garden-city: "*The monkey is to man as the Garden-city is to Linear City*".

[9] See Soria y Mata, Arturo,"La Cité Linéaire . Nouvelle architecture des Villes". Rapport presented by "Compañía Madrileña de Urbanización" in "Premier Congrès International de l'Art de construire villes et organisation de la vie municipale", Gand. Translated by M. Georges Benoit-Levy. París, Centre d'Etudes et de Recherches Architecturales, 1979.

A lot of facets of Ensanches and Garden-city come together in the Linear City project. Nevertheless in the case of Garden-city, which is contemporary to Linear City, the matters which do not achieve the objectives established by Arturo Soria are dismissed. It is the case, for example, of the effects of both "models" on land prices, above all on those with "centrality" values. According to Arturo Soria, Garden-city keeps its plan as a centralized urban model, what does not miss high values of central property, decreasing when we approach to periphery. As a consequence, this hierarchy of values promotes and determines social segregation. The reasoning exposed is to some extent unappealable, as land value depends not only on its location but also on its use, and we all remember that Howard dedicated the centre of the Garden-city to a Great Central Park. "*In the Linear City, on the contrary* –Arturo Soria explains- *the highest price of land will not be just in one point, but in a line of indefinite extension, which decreases as far as it separates from the lanes alongside crossing streets. Prices are distributed along roads parallels to railway, and not by concentric circles. As land prices decrease quickly, we can locate various social contents in a same block*"[10].

Nevertheless, land value should not be interpreted depending on its location, without taking into account the property interests, without appealing the social added value of those interests. Apart from those anecdotes, the really interesting thing regarding this question is the fixed attitude present in all the proposals exposed. Neither of them questions about the land role as "product". That is, its "rent's land" status to the detriment of that other which would consider land like "area for social development" one. Therefore, the Capitalist City born under industrialization is not put into question. Only the defects derived from the process of urban development are disputed, in order to correct them. Land speculation stands out among these faults, forgetting that this one is the consequence of the "urban model" which is not put into question or abandoned.

[10] See Soria y Mata, Arturo, "Tratados de Urbanismo y Sociedad". Selection of some of his writings, the basis of its Linear City Project and several articles that form its philosophical and ideological thinking. Edited in Madrid, by Ministerio de Educación y Cultura, in 2004.

What does Linear City collects from previous experiences, accepting or refusing them, that lead us to consider it a New Town proposal that could be referenced as a "model" to imitate, or interpreted critically? Does it include the overall casuistry or does it represent a concrete case? In a different way, does it allow to think about an assumption of the principles of capital, as any other urban expression, either projected or spatially redirected? Could we really take the Linear City as an exemplar town which, although devised as a spatial alternative in opposition to the existing, it is not identified as an alternative to the town of capital, like in previous models?

Linear City was devised as a New Town project, regarding, as a methodological proposal, some questions which, in those days, were being reconsidered as a new way of thinking about "urban corpus" elaboration. Its status of New Town project precisely lied in this aspect. That is, this status lied in its new urban proposal, devised as a spatial alternative, which project basis defined, in turn, a conceptual corpus on urbanism. On the other hand, talking methodologically, that "corpus" was being built in a strong connection with economic, social and political demands which correspond to the reproduction of capital. Indeed, the city of capital, from which Linear City was another outline, was being thought, projected and built.

Linear City's conception started towards 1882. Since that year Arturo Soria closely collaborated with the newspaper "El Progreso". It is by the press that his ideas would be issued. Among that ideas, the one about which Arturo Soria was most concerned was traffic. Thus, he devised new urban entities as agglomerations whose future scenery and final form were determined by the requirements of urban mobility: "*… a town's form*, he said, *is, or should be, a form derived from the needs of locomotion…the first thing we should do is to draw a railway*"[11].

[11] See Terán Troyano, F. "La Ciudad Lineal. Antecedente de un Urbanismo actual". Madrid, Ciencia Nueva, 1968.

In this way, Linear City was organized as a "rail corridor", with a large central street, about 500 metres wide, traversed in both directions by a tramway. Services-equipments were situated in this axis' edges, making this one into the central model par excellence, beyond which a diverse residential area was extended.

He gathered from Ensanches its Residential-Bourgeois City condition, differentiating it from that one which welcomed the proletariat. He also took up a new approach to the project, in which the Plan-Design represented the first phase, getting autonomy in front of its real process of construction. That implied, therefore, the end of the discipline's route that had subordinated the city to its architectonic side until that moment. The Plan-Design identified the new urban project in the context of a new Theory of City. This theory bet on the Hygienic City and turned the means of transportation into the tools that enabled mobility and land production.

However, even if Linear City is conceived as "new town", it can't ignore the City of Madrid, what would pave the way to its final conception as a peripheral area dependent on its coexistence with the existing city. "*Workers and pensioners, workshop foremen and other people,* Arturo Soria explained*, could come to Madrid centre -to the offices, workshops and studios- in the morning, and they would be back to their homes in the evening…This project, from which I am licensed, consists on planning Linear City along the ring railway-tramway. I pretend to set up a neighbourhood similar to the Paseo de la Castellana's one, affordable for everyone because of cheap land, simplicity of payment in instalments and because each plot's buyer would have the land once the first instalment has been paid*"[12].

In effect, Linear City, conceived like town, is carried out as periphery. We find a more direct relationship between "new town" and "peripheral areas" in the Linear City project than in the Garden-city one. Thus, we can consider that like an urban proposal consisting on the construction of a "peripheral area" as an

[12] Soria y Mata, Arturo, "Tratados de Urbanismo y Sociedad", op. cit.

alternative, as a "new town", and also as a "fragment". Meanwhile, Garden-city is shown as a total alternative, even if the following interpretation of this one would result into its own perversion, considering the initial "decentralization" a simple "residential decentralization".

Nevertheless, Arturo Soria's project has gone further. We think that there are obvious similarities between this proposal and Le Corbusier's one in relation to "*The Three Human Establishments*"[13]. Indeed, both of them devise the New Town project as a diverse structure of "linear routes" which rely on existing cities, considering these ones the heads, central reference nodes, of the suggested "territorial structure". For both Le Corbusier and Arturo Soria, town expands like an "urbanized territory". In this territory's frame existing cities act as the "centres" in which big ideas are originated, while in "linear space", strictly speaking, is where the principles of modern urbanism, the industrial age's new towns, are executed. They both talk about the need to "urbanise country-to "ruralise" town", idea inherited from Cerdà's and Howard's thinking.

In effect, Le Corbusier lays out, in the context of "*The Three Human Establishments*", the "total urbanization of territory". To do that, Industrial Linear City, suggested as one establishment more, between others, together with Radio-Concentric Cities, existing cities and units of agricultural development, which take up the centre of the triangulation formed by those establishments, all of those define a structure which gets the value of a City-Territory. This is the New Town, directly inherited from Arturo Soria's thinking. The only difference in favour of Le Corbusier is that Linear Industrial City is provided with the three classical modes of mobility of goods and people, that is, motorway, railway and water. "*The exam of working conditions on industrial societies,* said Le Corbusier, *leads to recognise the utility and need of the three basic human establishments for the activity. That is, unit of agricultural*

[13] See "La Cité Lineare Industrielle", in "Le Corbusier. Oeuvre Complete. 1938-46", les Editions d'Architecture Zurich, published by W. Boesiger, Edition Girsberger. 1966.

development, Industrial Linear City and Radio Concentric and exchange's (government, art, ideas, commerce) City"[14].

In the same way as Arturo Soria, Le Corbusier does not ignore the existing town, the Radio-Concentric City. He considers it to be essential for the New Town project, taking that city as a territorial presence unavoidable to sign on new urban adventures. Although he is usually so critic to history that he refuses to recognise it as a reality to get back, on this occasion he considers that it is indispensable. Thus, he gives that existing city none other than the role of space for creation and thought, the art city. Is this the first step to define the new town in which the existing-constructed, the historical town, has a privileged place? In this case, the modern urbanism basis would spread out beyond the city itself, where there is enough "void-space" and the "country urbanization" makes into reality.

All the urban projects designed by Le Corbusier are paradigm of the new city, which is being thought as an alternative to its first industrial expression, inherited from Nineteenth-century town. After reviewing these projects, we observe a theorist position in which the existing city occupies a prominent place on the new town project. Far from its anti-historical stance, Le Corbusier does not disregard historical city. Indeed, he assigns to this one a prominent role as the new city "centre", although indiscriminate renewal is needed. Like this, we could understand that reproduction of "centrality" on new towns is not possible, in such a way that we should necessarily add "historical centrality", or existing city, to the new town project. This means the recreation of the projected beyond the constructed, that is, in peripheral areas.

In effect, we notice this permanent feature in Le Corbusier's urban projects: The use of the existing city as a spatial category which assumes "centrality" conditions is appreciated in most of them, with the exception of Chandigarh project. This latter is more like a theorist recreation, an attempt that history is redirecting to its town condition. With this reservation, we state that, as argued

[14] See "La Cité Lineare Industrielle", op. cit.

by Le Corbusier, "*Urbanizing is to value. Urbanizing is not to spend money, but to earn money, to make money … The centre of towns represents a great property value which can double, multiply, as modern techniques allow to build sixty floors and any more six…The centre of Paris, currently threatened to death, threatened to abandon, is actually a diamonds mine…it must rebuild on itself…*".

Therefore, in Modern City project there is a close link between what to do with the existing city and how to reproduce the newest –what spreads the most refined essences of modernity- in peripheral areas. Modern City is a creation which has its raison d'être beyond the existing constructed, where the new can be recreated, where new theories have creative freedom. We identify again the model assumptions made for Ensanches, Linear City or Garden-city in the New Town project. In this one, we notice that it is beyond the existing constructed were the ideals rooted on its own thought can be accomplished; that is, the construction of a new land intended to be a projected reality in all its scope.

Now then, and to conclude, experimenting new forms of Modern Towns apart from existing city, is not the New Town condition being reduced to a simple peripheral setting? Conceived as a complete town, does it abandon this condition to take the form of a neighborhood of the existing town? This is, at least, Hans Blumenfeld argument, appearing in its work on new towns of the U.S.A., like Chatham Village, in Pittsburgh, Baldwin Hills, in Los Ángeles, Green Belt Towns and Reston, Columbia and Irvin New Towns. In relation to that, he states that "*…they are not self-sufficient towns, but parts of a larger metropolis on which they completely depend. Actually, they are considered honest suburbs for medium and upper classes. Their inhabitants usually work outside this area and many times they mix together with industrial properties which draw workforce from outside*"[15].

Therefore, the project of Modern Town is presented more as a fragment than as a complete urban fact, helping, in its new town condition, to renew the existing

[15] Blumenfeld, H. "El Papel del Diseño", published in the book "El crecimiento de las ciudades", coordinated by D. Lewis. Barcelona, Gustavo Gili, 1972.

town. To achieve that, it is indispensable to think, to project, to program and to build a peripheral area which welcomes, by the decentralization process, the concrete functions of traditional urban centres. These "new fragments" are refined as the other side for the renewal process of that "centres". This is, at least, Morton Hoppenfeld's opinion, a planner who participated in the project of Columbia's New Town, located between Baltimore and Washington. "*Columbia,* he states*, was never devised as self-sufficient. In all ways, it is integrated into the socio-economic life of Howard`s County and large metropolis of Washington D.C and Baltimore. It is expected to become the third urban centre, between the two big cities."* Seeing this experience, on the other hand he argues that "*… we will not be able to raise our central towns again unless we form, at the same time, new communities going with urban renewal…Any reasonable politic intended for reconstructing our cities should necessarily contain a politic for the develop of new towns as a complement*"[16].

[16] Hoppenfeld, Morton "El Proceso de Columbia: El potencial de nuevas ciudades". In D. Lewis, "El Crecimiento de las Ciudades". Barcelona, Gustavo Gili, 1972.

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TRANSFERABLE LESSONS FROM THE BRITISH NEW TOWNS

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Abstract

Great Britain has a long tradition of building New Towns. Some of the early developments, such as Letchworth and Welwyn Garden city were a direct outcome of Ebenezer Howard's ideas presented in his seminal work Tomorrow: a peaceful Path to Real reform (1898) later published as Garden Cities of Tomorrow (1902). These early developments were initiated to remedy some of the worst slum conditions of London and they became models for the next generation of new settlements.

The post-war reconstruction was underpinned by the 1946 Act on building New Towns in order to accommodate the overspill from London and to generate urban growth. Thirty two New Towns were designated in two phases: Phase One, from 1946-1950 and Phase Two, between 1961-1970. Phase Three took place between 1970 and 1996.

In 2004 the Office of the Deputy Prime Minister commissioned a research project on the transferable lessons from the New Towns, to establish guidance for the building of new or expanded communities in four growth areas: London-Stansted-Cambridge-Peterborough corridor; Ashford in Kent; the Thames Gateway; and the expansion of Milton Keynes. This paper presents the key findings of the research, by focussing on the context of building New Towns in the UK; by identifying key transferable lessons grouped under eight themes of delivery, finance, creating communities, governance, economic achievement and competitiveness, physical environment and design, long-term sustainability and end user experience. The last part of the paper makes final recommendations for building new communities in the 21st century.

Keywords: British New Towns; transferable lessons.

Background

In order to solve some of the problems of the 19th C Great Britain a number of ideas were put forward by the philanthropist thinkers such as Ebenezer Howard and later on by Raymond Unwin, Barry Parker and a whole host of other key players. The most radical and influential early ideas came from Ebenezer Howard and his seminal book *Garden Cities of Tomorrow*, published in 1902 as a less provocative title of the earlier version titled *Tomorrow: A Peaceful Path to Real Reform* (1898).

Howard's idea was that large city conurbations, particularly London, should be relieved of its congested areas by building satellite new communities (Ward, 2004).

The idea of building new communities was not a new concept to managing urban growth and some of the early ideas were put forward by King Edward I, in 1296, who ordered 24 new towns to be built. Later on it was Leonardo da Vinci who had similar ideas for the city of Milan. In 1515 Thomas Moore proposed a Utopia, based on similar ideas as proposed by his predecessors.

Howard's concept of 'Town' and 'Country' was specifically designed to cope with London's situation, but later on it was also applied in other new town building programmes. Each new town was designated to be moderate in size, between 32,000 and 58,000 people, was to be self-contained, defined by a green belt to separate the 'town' from the 'country' and was to contain services and employment that any town should have.

In addition to theoretical and social concerns, the political underpinning for building New Towns was also strong and in order to implement Howard's concepts the Garden City Association was formed in 1889, led by Howard, which later on became Town and Country Association (Ward, 2004).

In order to implement the ideas proposed by Howard a programme for building Letchworth Garden City was put forward in 1901, with Raymond Unwin and Barry Parker as its key players. This initiative was followed by the development of Welwyn Garden City in 1919. These two new towns became prototypes for the new generation of planned settlements, designated to decentralize urban growth away from the major London conurbation.

After the Second World War the UK government started one of the most ambitious programmes of post-war planning, in order to replace some of

the lost housing stock destroyed during the war as well as to replace slum areas of major cities.

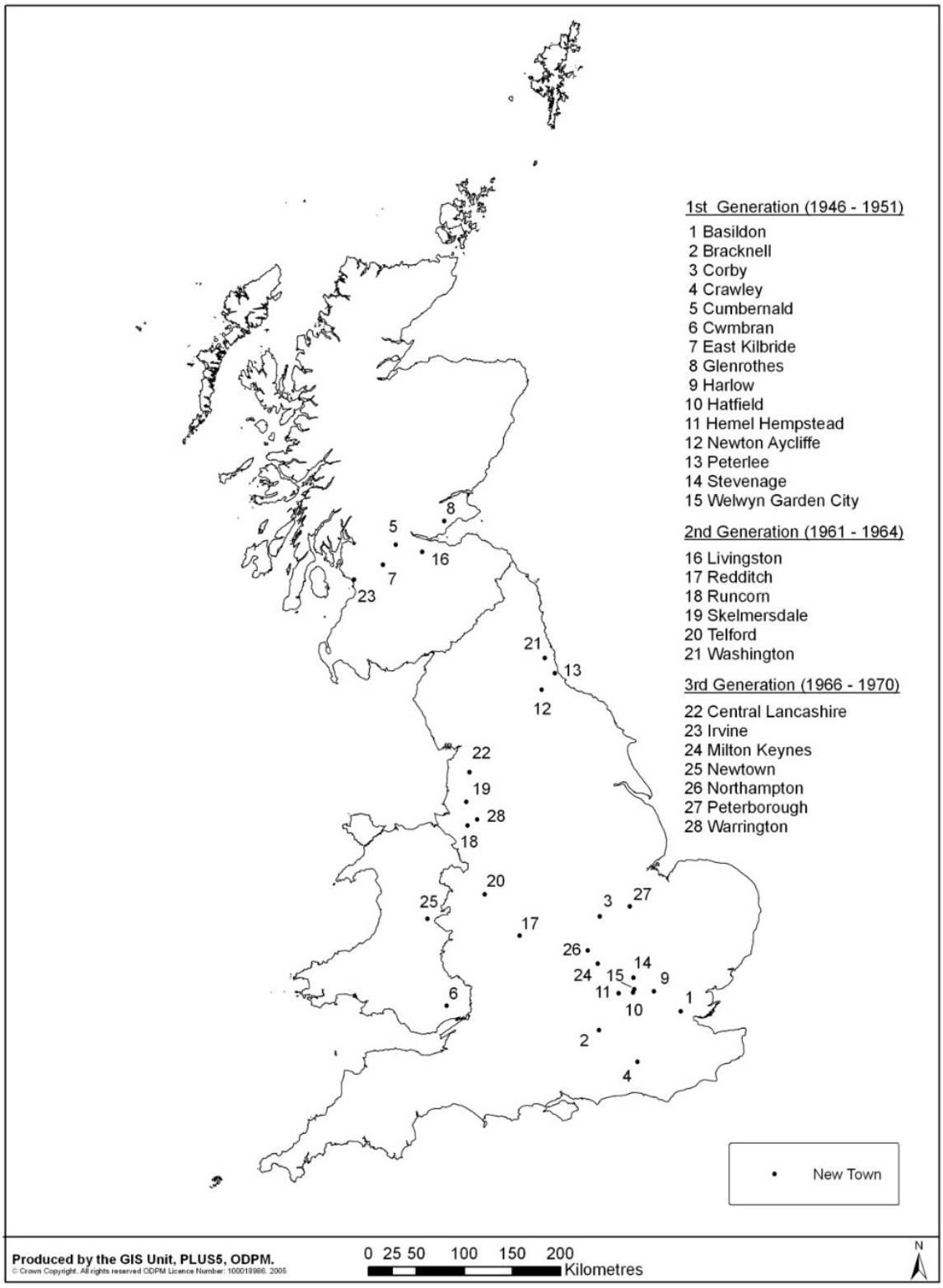

Figure 1. British New Towns (DCLG, 2006).

Figure 2. Designated UK growth areas (DCLG, 2006).

The 32 New Towns created in the UK from 1946 represent one of the major programmes of post-war planning. Eleven were created in the

south east or in neighbouring regions. Of the remainder, six were in central Scotland, four in the north west, three in the north east, three in Northern Ireland, two in Wales, two in the west Midlands and one in the east Midlands (Butina Watson et al, 2006). In total, the overall targets were in the region of two million people. By 1991 actual growth amounted to only 1.4 million. New Towns planned for the capital region had achieved 90 per cent of their planned growth. Growth of some New Towns has continued since 1991 and some are undergoing further expansion programmes (Butina Watson et al, 2006).

The New Towns were designated mainly in two phases: from 1946-50, when most of the London overspill New Towns were begun, and from 1961-70, when most of the provincial New Towns were designated. They were governed by the statutory mechanism involving the creation of an appointed public corporation serving each New Town that had strong powers as a delivery vehicle. There were two major strategies employed: new towns designated on new land, away from the major conurbations, and through the expansion of the existing settlements.

Within the New Towns programme itself, there were some important variations over time. The most obvious change was in the role that the private sector played in the delivery of various aspects of development, particularly after the election of the Thatcher Conservative government in 1979. There were also major changes in the housing tenure patterns of the New Towns. Initially most New Town residents were development corporation tenants, although owner occupation began to grow from the late 1960s as private house builders were given a bigger role to play. This was also enabled by the changes in right to buy mechanisms, supported by legislation that was introduced in the early 1970s and, especially, from 1980.

Whilst there was much similarity in the planning and delivery of early New Towns, there was much greater diversity in the planning of the later towns. Over time they gained a high level of prestige and there was much

professional support for them and they attracted high calibre appointees to run them, staff to work for them and consultants to undertake commissions for them. They also attracted a great deal of professional and academic attention, inspiring an immense amount of published material, of varying utility (Butina Watson et al, 2006).

New Towns and Growth areas: Transferable Lessons

The next section of the paper presents findings from the research carried out on behalf of the Department for Communities and Local Government (DCLG, 2004-2006) with a view to analyse research and other literature on the existing New Towns. Particular focus is on the transferable lessons from the New Towns under the 1946 and subsequent New Towns Acts (Butina Watson et al, 2006). The main purpose of the research was to identify lessons from the New Towns programme that might be transferable to the Growth Areas initiatives. Key growth areas include:

London-Stansted-Cambridge-Peterborough corridor;
Ashford in Kent;
The Thames Gateway;
Milton Keynes and South Middlands.

The research was largely desk based, supported by the researchers' own primary investigations and work, and it utilised some 2000 books, articles, and other published material (Butina Watson et al, 2006). The most important source was the *New Towns Record*, prepared on behalf of the Commission for the New Towns and the relevant Scottish and Northern Ireland Departments. First issued in 1997 and revised in 2004, it collects a large amount of research material. The transferable lessons are structured under eight main themes:

1. Delivery
2. Finance
3. Creating Communities

4. Governance
5. Economic Achievement and Competitiveness
6. Physical Environment and Design
7. End user experience
8. Long-term Sustainability

As the House of Commons Select Committee on Transport, Local Government and the Regions observed in 2002, the New Towns programme constitutes the most important source of previous lessons regarding large scale planned urban growth. It was obvious from the outset of the research that certain lessons will simply not be transferable, or can only be partially transferred, as the context is now quite different with far greater reliance on private developers to deliver growth.

One of the key findings is that although there is a need to be flexible when preparing master plans for the growth areas, it is acknowledged that they undoubtedly played a key part in creating New Towns identities and promoting their images. This quality remains important and can usefully be retained within the Growth Areas programme today.

This sense of partial transferability applies also to other topics. Like any large scale areas of growth, the New Towns obviously faced major problems of infrastructure provision and, in some cases, land reclamation before development could proceed on the ground. The key difference then was that these were resolved by public finance (even though only a small part of this actually came from the New Town Development Corporations themselves). The private sector role in infrastructure provision, by now privately-owned public utilities or other bodies, is obviously much greater in the Growth Areas today. Yet the greater reliance on public expenditure in the New Towns posed its own problems and sometimes clearly needed great resilience and persistence on the part of those responsible for securing it from central government or other public bodies. Although their efforts will be differently targeted, those responsible for delivering the

Growth Areas need to display similar qualities in championing the infrastructure needs of their own areas.

The scale of growth in designated four growth areas is comparable to earlier built New Towns but there is, to date, a limited attempt to create entirely freestanding new settlements in the Growth Areas, except, in line with local planning policies established around Cambridge and a newly proposed Garden City of Ebbsfleet in the Thames Gateway.

In several cases (Basildon, Milton Keynes, Northampton, Corby, Harlow, Peterborough) former New Towns are actually affected as they are designated for further growth. There is a recognition that ordinary local planning agencies are in most cases inadequate to deliver major growth on their own, and therefore some form of a Development Corporation would be desirable.

Though today's language differs, the emphasis on creating sustainable communities and accommodating social mix has strong echoes of the New Town ideals of self-containment and social balance. There are likely to be comparable problems of major infrastructure provision which will be critical before large scale development can proceed.

It seems likely that some degree of master planning will be required, which in the New Towns played a key role in establishing image and place identity. Place marketing is also likely to be an important consideration in Growth Areas as it was in the New Towns. This is already used in the Thames Gateway area.

There are though some important contrasts which will limit the possibilities of lesson transferability.

The New Towns Development Corporations (NTDCs) were unelected nationalized corporations charged with developing a town. They were

directly appointed and had strong land acquisition powers. The Urban Development Corporations (UDCs) generally share some of these characteristics but will not be operating in areas otherwise most comparable to the New Towns.

The NTDCs largely operated in a climate of high state spending at a time when there was a stronger belief in public sector enterprise and investment. They were themselves major developers. Today, there is greater emphasis on public/private partnerships, and a much greater involvement of the private sector.

In particular the NTDCs were landlords of large amounts of housing. This had major advantages in ensuring housing affordability and this obviously played a role in getting major development underway relatively quickly. Today, social and affordable housing is delivered through Social Registered Landlords or the private sector.

It seems likely that the Growth Areas will involve a higher ratio of brownfield: greenfield development, compared to the New Town developments. Generally NTDCs, at least before the election of the Thatcher government in 1979, had a very different relationship to private developers and especially house builders to that which prevail in the Growth Areas today. Lengthy negotiations of planning agreements were virtually unknown but today they can be key issues in the Growth Areas.

The New Towns, especially in the south, were very successful in attracting employment that closely matched the skills of their local workforces. Although the wider regional economies clearly have great growth potential, it is less clear how far the Growth Areas will be able to match this record at a more localised level.

Key thematic findings

Delivery

In order to deliver New Towns programmes, New Towns Development Corporations (NTDC) were set up to deliver a complex set of planning and other development procedures. NTDCs were powerful delivery bodies that could acquire land, quite often at very favourable prices, and also had all other powers to build new communities. They acted as 'lead' developers as well as landlords. They could also borrow funds from the government at very favourable prices for periods of up to 60 years (Cullingworth, 1968; Osborne & Whitick, 1977).

Transferable lessons to the new growth areas are that NTDCs are still being set up to deal with large-scale urban developments; London Docklands Development Corporation is a good example, and more recently similar structures were set up for the development of London Thames Gateway (Butina Watson, et al, 2006). In today's climate, there could be more public/private partnerships charged with the responsibility to deliver growth, and also pull the financial resources together. Involving private house builders to deliver both private and affordable housing, is also desirable to delivery diversity of tenure and housing provision. Such partnerships can also deliver faster, but co-ordination is needed via master planning. This also applies to Local Authority partners where joint efforts are desirable particularly when it comes to building infrastructure or the provision of schools and other social facilities.

Partnerships with voluntary agencies to deliver community clubs and other social facilities are also desirable early on in the planning of large new settlements. Delivery Partnerships should also engage with the existing local residents as well as the newcomers, to establish social cohesion early on in the process.

Although there is an element of competition building in different growth areas, partnership working should be encouraged to overcome delays and complex negotiations, particularly in building roads and other infrastructure projects. The research also established that an organization could be formed at the national level to facilitate mutual learning. Some of this exchange of knowledge is currently being provided through the Town and Country Planning Association (TCPA).

Finance

Both the Central Government and private finance need to be co-ordinated and clear responsibilities established. Early acquisition of land is particularly critical, in order to avoid complex purchase negotiations at the last minute and also to avoid high costs. Additional value created through development should be used to provide social amenities and facilities, and the current mechanism of Section 106 agreement can facilitate this benefit.

It is also important to prepare long-term financial scenarios as any fast return on investment may not be viable. Detailed implementation strategies ought to be in place in order to avoid unnecessary delays. Careful attention should also be given to marketing new growth and new community developments to attract companies as well as residents into the new growth areas. Growth area teams should also consider sustainability issues, encouraging modern technology and renewables to be employed in the construction of houses as well as other facilities.

In costing and preparing financial plans care should be taken to secure adequate funding early on in the process in order to avoid delays in the building and construction processes but also to provide confidence, reduce risk and give credibility to the development. If the growth areas are to be part-financed by loans, these should be on flexible terms, and if possible at low interest rates. It is also important to take into consideration recession and other economic downturns, therefore early finance from the

Government sources is needed in order to launch such large-scale building initiatives (Butina Watson et al, 2006; Lock, 1989).

Creating Communities

Key lessons relating to "creating communities" need to be considered in the context of 21stC community initiatives. Some of the differences and changes highlight that the New Towns were planned before car ownership was as extensive as it is today. As a result the layout and parking provisions were different from today's requirements. Individuals are more geographically mobile today than ever before. Potentially, people identify less with their local community or neighbourhood as a result, and therefore the challenge of creating integrated communities is all the greater. Related to this is the commuter lifestyle that affects many people today.

Housing in the New Towns was initially largely rented from a social landlord. This enabled much more centralised planning for communities to be put in place. Today's housing provision is dominated by the private sector, but with a requirement for the provision of social and affordable housing. It is important to have a mix of housing types, tenure and other requirements such as housing for elderly and disabled to encourage mixed community structures as this inevitably influences the type of communities that come to live in the new settlements.

It is also worth noting that the New Towns built after the war were very different in character and context. Nevertheless, some of the lessons to come out of the literature would appear to have relevance to today's context.

It is important to put in place participatory structures whereby both existing and new communities can engage in early decision making processes, linked to planning and design issues. This was already

identified in the planning for growth of the Thames Gateway (Butina Watson et al, 2006). A 'Community Chest' or Community Trust Fund could be set up early in the process of planning new communities so that social aspects, voluntary and community projects could be supported. It is also useful to engage with Local Councils, the church, neighbourhood associations and youth organizations.

It is important to incorporate 'walkable neighbourhood' principles, to encourage walking and cycling. Locations of Schools and other facilities are therefore important to consider in the design process as well as support mixed use developments. It is also desirable to have social, educational, health and other facilities established in the new settlements areas, before the population moves in.

Governance

It should also be recognised that the New Towns were initiated and substantially developed in a period of much greater social deference than today, when most of the population did not readily question the judgements of those in positions of authority.

Concerning the pre-existing communities in designated areas, central government and NTDCs learnt from the public relations disaster that marked the early days of the first New Town at Stevenage (Orlans, 1952). NTDCs soon recognised the need to maintain a regular flow of local public information about their New Towns for both pre-existing and incoming populations**.**

This involved initiatives such as specific NTDC newsletters and strong encouragement to existing local newspapers. The social development departments of NTDCs were very important in these efforts to encourage community development and cohesion. Social development and housing departments often became channels of communication between community concerns and the development corporation.

Amongst the 'New Towners' themselves, tenants associations were often the first expression of autonomous community action. Other community organisations were created with the encouragement of social development officers and sometimes also the active involvement of voluntary agencies such as the churches.

Effective arrangements to organise and involve communities in governance often helped NTDCs in their negotiations with other agencies to secure better facilities for the New Towns. Local authorities were another vehicle for articulating community concerns with the advantage of providing a formal elective element to allow representation of the new communities. As noted, however, relations with the NTDCs were often strained.

Research identified (Butina Watson et al, 2006) that clarity of responsibility for delivery and related governance in the Growth Areas is essential and that they should be absorbed into the normal governance systems as quickly as possible. Development Corporations should also encourage autonomous community activity and leadership.

Economic achievement and competitiveness

The initial success of the New Towns was based on the change of land values from those of agricultural values to those associated with urban uses. This is a key "hidden" tool that has been used elsewhere to encourage the establishment of private sector economic activity.

Another element in their success was the national macro-economic conditions of the period in which the first generation of New Towns were developed. Low interest rates and low inflation combined with economic growth and an urban-rural shift, especially in manufacturing industry, meant that they were essentially working with the grain of their contemporary economic environment.

The early post-war period is often seen as the era of nationalisation and central control, and the creation of the NTDCs could well be interpreted as an act of public ownership. But the programme was very decentralised in that initially the Development Corporations enjoyed a high degree of autonomy from central government control.

Whilst the post war New Towns were linked to the decentralization of industry and population current growth patterns are more globally connected and therefore attract a greater diversity of employers and other organizations. This is particularly evident in the Thames Gateway as well as in Cambridge and Milton Keynes.

Physical environment and design / master-planning

This section presents findings from a review of the literature on the topic of physical environment and design, including master-planning. These include issues of process as well as urban design – layout, transport infrastructure/road and path configuration and architectural style.

It is well recognised that there were major changes in the design thinking and ideology between the early and later New Towns. In particular, the influence of modernism, both in relation to style and to the notion of an efficient disaggregation of land uses has been replaced by a greater concern with local identity, the mixing of uses and issues of sustainability. Attitudes towards mobility have also shifted from car dominated to people dominated design philosophy. Therefore, changing attitudes to the relationship between roads and built form is an additional major factor in design thinking.

On the more general theme of master-planning as a process, the dominant process of design was top-down, based on the creation of an overall plan at the outset, at different scales of morphological level of resolution. In addition to master planning the more recent models of

coding or design frameworks are also able to provide more flexible and dynamic solutions to local circumstances.

A population of 32,000 as intuitively advocated by Howard (1902) is also argued to be a reasonable base-line figure for new settlements, particularly with respect to transport sustainability. Size is related to location, and more remote sites require a larger size for any degree of self-containment; sites closer to existing large cities can be smaller to provide day-to-day needs (Miller, 1997).

New Town neighbourhoods in the 1950s were of a size to support at least one primary school, located at the centre, with its open spaces to give a green core. This neighbourhood principle underpinned policy on size: commonly based on provision of a catchment to support a primary school, as part of a larger district with a secondary school, and larger neighbourhoods of 15,000 (Miller, 1997).

The largest of the New Towns is Milton Keynes, with a target population of 250,000 and is again undergoing expansion to accommodate new employment and population growth. Towns with a target population of 150,000 to 300,000 appear to offer 'adequate' choice to employers and employees, and a full range of social, cultural, educational, health and other facilities (Cervero, 1995). For shops, an average of 5,000-10,000 catchment area is needed.

New expansion of the four growth areas today should also benefit from the existing services, but any new increase in population should be accompanied by adequate strategic planning of educational, health and other social facilities (Cervero, 1995). Equally important is to mix housing and employment to avoid unnecessary car journeys. The same applies to the integration of retail and other uses. Mixed-use, compact city model is also supporting higher levels of sustainability; attention should also be given to the green and wildlife corridors as an integral component of the overall spatial structure.

The research established that the following design aspects need to be considered. First, the overall legibility of the new developments ought to be considered, focussing on clear nodes, landmarks, edges, pathways and clarity of districts. Open space provision should be incorporated within the neighbourhoods, not placed at the edges. At the level of architecture, good energy efficient design solutions should be a norm. Different densities ought to be considered to maximise positive experience, and to promote a positive sense of place-identity. Equally important are top quality public transport links, serving both local as well as regional connections. Milton Keynes is developing some creative solutions in this regard, whilst the growth in the Thames Gateway is benefitting from fast rail connections.

End user experience

End user experience has changed over the years. Initial experiences in the first few years of the earlier New Towns programmes were sometimes described to suffer from the New Towns blues due to the loss of family and friends connections, and due to the lack of social diversity in such towns. Research also identified (Bishop, 1986) that not enough user satisfaction surveys were carried out in any systematic way; therefore further research is still needed to show some light on such experiences, particularly regarding: integration versus exclusion, sub-communities in New Towns and self-selecting mono-communities.

Conclusions

The research identified a number of transferable lessons that could be and are applied in the development of four growth areas. It is particularly important to emphasise that any new growth needs to include both the residential as well as employment sector. Particularly significant is the knowledge based economy around Cambridge where transferable lessons

are already applied in settlement planning. Milton Keynes is another example, where original principles and transferable lessons are hand in hand. Milton Keynes is an excellent example of New Towns going beyond the original size specification proposed by Howard and it demonstrates that different generations can continue to shape cities that meet the needs of present as well as of future generations of residents and employers.

The lessons are also evident in other new communities being built and planned. Poundbury in Dorset (Butina Watson et al, 2003; 2014), demonstrates that we can design new expansions in the existing areas in the spirit of New Towns, using the knowledge acquired through previous experience of the New Town communities. Similar lessons are also now being applied in the Thames Gateway as well as in Ashford, Peterborough and other UK regions.

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FOUNDATIONS AND FUNDAMENTALS. URBAN CENTRALITIES FOR EUROPEAN SUBURBS AND NEW TOWNS: A COMPARISON OF CASE STUDIES FROM CHINESE POST-METROPOLIS TO NORTH-AFRICAN "PURE DESERT"

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Abstract

Urban and architectural design –intended as a relation between the fundamentals emerging through a dialogue with the place and a definition of new foundations based on regulation criteria and measured settlements- can cross different contexts of contemporary anthropogeographic landscape, according to a principle of critical intervention on cities and territories.

In Europe the urban sprawl to increasingly extended, mono-class and typologically poor suburban neighbourhoods can be managed by the foundation of new urban centralities, a reorganization of built-up areas in order to enhance new relations between type, function and signification.

In China, the ceaseless development of the post-metropolis – lost the idea of a urban form for a settlement totally forgetful of the cultural fundamentals of historical cities- corresponds to a social division – both voluntary and imposed- and the subsequent emergence of increasingly extended and impassable ghettos. A possible hypothesis to face this new geography of physical fragmentation and segregation is the rearticulation of settlements, based on the foundation of new towns, limited in size, as prototypes of a possible urban future organized according to a multipolar principle of territorial reorganization.

Some north-african countries have recently promoted advanced studies to relocate nomadic and migrant people: the result is the hypothesis of a system of new settlements, founded on what William Morris defined the extreme boundary of architecture: the pure desert.

The report proposes a reinterpretation of the present issues through a comparison of some of the case studies experienced over the past decade by Gregotti & Associati office: the design process as a whole directs the foundation of new settlements based on a principle of morphological variation of the urban order and the architectures within it.

The idea of a urban form founded on the relation between territorial and architectural scales is both a working method and a theoretical base for the project: an active response to the signification of urban design and a reconsideration of the

role of the architect as an interpreter of the living conditions within the post-modern urban environment.

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THE 20TH CENTURY NEW TOWNS.
THE SEARCHING FOR AN IDEAL CITY

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Abstract

The search for the ideal city on the 20th Century has to do with the creation of New Towns. The New Towns concept is rooted in UK under the scope of the London City Council reconstruction actions after the WWII. The movement had a tremendous impact from Helsinky's Tapiola's or Lisbon's Olivais Neighbourhood. These developments must quote Howard's Garden City Movement raising and inspiring the Modern Movement Urbanism: from the Neue sachlichkeit Bruno Taut's Siedlungen or the May's Neues Frankfurt enterprise to the Tessenow Hellerau Neighboorhood, from Tel-Aviv new city to Brasília or Chandigarh new capitals which revealed specific political and cultural targets.

The paper intends to provide a reading on the New Towns European influence and the non-Europeans New Capitals iconic reference as a 20th Century specific urban approach. The analysis aims at discussing this Modern Urban legacy as a strategy for the Unesco' urban landscape heritage concept implementation.

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PAPERS

AN INVESTIGATION ON LANDSCAPE STRUCTURES IN IRANIAN NEW TOWN DEVELOPMENT
The case of Fuladshahr New Town (1963-2013)

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Abstract

This paper intends to explore the changes made to the urban landscape of Fuladshahr New Town in Iran by focusing on (mainly public) strategies and initiatives elaborated with regard to two particular urban development momentums. Firstly, the experiences of the pre-Islamic revolution of 1979 under the shah's regime and secondly, developments occurring after the Iran-Iraq war period. The exploration draws on two different levels of analysis, namely the large-scale of the metropolitan region, the medium-scale of the New Town in each stage of time.

Rapid urbanization and the rural-urban migration during Iran's modernization forced the government and urban decision makers to offer an array of different solutions for housing and infrastructure provision at each paradigm shift. From construction based on political security and industrial growth to regional decentralization in order to control the overflow of population in large cities, these strategies have all been considered in Iran's New Town development. Most recently, the government provided affordable housing (known as Mehr housing) is the main agenda under which New Town development is implemented throughout Iran and around Tehran.

This contribution offers an alternative reading of the above-mentioned development strategies by focusing on the landscape characteristics that acted as a support for past urban developments and are no longer relied upon when developing Iranian New Towns. Methodologically the paper applies inductive and descriptive approaches in which will not only analyze Fuladshahr's degrees of flexibility over a period of time, but will also investigate the role of landscape in the New Town's evolution. Using mapping methods, the landscape will be highlighted in the role it has (or not) covered in Fuladshahr's urbanization, and the type of urbanity that has consequently been generated.

Keywords: New Town, Urban Landscape, Iran, Fuladshahr, Urban change

Introduction

Pre-revolutionary Iran's economic development was rapid. A traditional agricultural society, had achieved significant industrialization and economic modernization by the 1970s, largely aided by the growing worldwide demand for oil.[1] By a look at the urbanization process and the booming in the population growth the city sizes and extensive rural to urban migration all ended with the growth in the major cities and resulting an increase in the number of cities in these years. The growth in the number of cities were not the same as the growth in the population of the major cities such as Tehran, Mashahd, Isfahan and Tabriz. These cities continued to be the main attraction for the migrates and the size of the cities were also passed its desirable limits. The modernization movement with regard to the industrialization of the cities ended up by expanding the city territory toward consuming the nature and the landscape around the city, where the productivity of the people and therefore the culture were starting from. By an investigation in the history of historical cities in Iran, the dominant of landscape characteristic is noticeable and illustrates the various impacts of landscape as a structuring element in the different scale of spatial development and therefore in the cultural and social dimensions.

Isfahan as the Iran third largest city has a noticeable history in interrelation with landscape in every aspect of development. Since the 17th century Isfahan spatial and social configuration has changed a lot and this evolving in each stage of time is a consequence of political and social changes that were appearing in that time frame. The development of the region since the modernization period was concentrated in new town development, but in each stage of time concerning different agendas. The Isfahan urban growth process followed certain changes in the spatial and social configuration of the region in which cannot be read without its interrelation with landscape as a platform where all these transformations and evolving are happening.

Fuladshahr New Town as the first New Town which was designed in Isfahan region has faced different development strategies with regard to two particular

[1] CIA World Factbook (February 2012)

urban development momentums. The complex interplay of socio-economic and ecological process, has shaped landscape as a medium of exchange in which it formatted a complex network of political, social and cultural identities.

'The challenges to the region are immense and need to be understood in all their complexity in order to then propose feasible alternative and strategic projects.' (Shannon, 2010, p.94) In addition to Shannon argue about understanding the process of urban development, testing the thesis of landscape urbanism as a means by which the fundamental questions about the contemporary city and new ways of intersection of physical and social processes of territorial formation will be investigated in order to generate new forms of urban typologies and knowledge. Shannon also brings out the importance of understanding the region's history in order to learn lessons from the interdependent relationship to landscape. '*Recognition and abstraction of the idea of synergy between urban and rural, the consumptive and productive landscapes, can become a guiding principle for new urbanization.'* (Shannon, 2010 p. 148)

The first part of this research is a short exploration of historical studies on Isfahan development in order to highlight the framing elements of the early stage of Urbanism in the region. Later it will explore the development motivator in the contemporary Urbanism during the pre-revolution and post-war period in the New Town of Fouladshahr in order to reveal the role of landscape in the urbanization process of Iranian New Town development spatially Fouladshahr case. This research investigates the role of landscape in the New Town's evolution that acted as a support for past urban development and are no longer relied upon.

Maktab Isfahan, reframing a territory

After selection of Isfahan[2] by Safavid dynasty as the capital of Iran by the end of the 16th century, major urban design strategies were applied in order to give a

[2] Isfahan City located about 340 km south of Tehran and is the capital of Isfahan Province and Iran's third largest city. The city has a population of almost 1.600.000 people. It is Situated in the central part of Iranian Plateau at the eastern foothills of Zagros mountains and lush plain of the Zayandeh(Birth giving river) River. Heading north with a slight deviation to the west it goes towards foothills of the Alborz mountain range and Tehran. The eastern boundary of the city

framework to the previous and future urbanization of the region. The integration of the new development with the organic historical city, created an organization that has been an example for Iranian Urbanism since then.

> The formation of Safavid dynasty followed by '*Maktab Isfahan'* in urbanism can be compared with the reinforcement of central Europe after the Renaissance and the creation of Baroque in the 18th century. When intellectuals and innovators are still struggling to structure their medieval towns and building their '*Ideal-City','Maktabe Isfahan'* has built its ideal model and depicts a sharp and clear portrait of what exists and what is appropriate. (Habibi, 1996)

Maktab Isfahan (Isfahan School) was a combined design of new and old city with the following characteristics: the new garden city of Isfahan got connected to the old city centre via a new structuring spine. This urban corridor (Chahar Bagh) works as a north south link between river as an ecological gate for the city throughout a sequence of gardens and public spaces toward the old urban fabric of the city. The designation of three neighbourhoods for the development of the city was also part of the new plan in which for the first time in the history of urbanism in Iran river has become a natural east west corridor in which the urbanizations are located in the northern and southern part of it. A closer look at this integration of old and new reveals the relation of historical irrigation technology to the new urban structure. 'These irrigation channels named '*Madi*[3]' had major impacts in water management and transfer to agricultural fields and to the gardens of Isfahan. *'Madis'* were a dendritic irrigation system that branched from the river and supported the production of cultivated lands and royal gardens'. (Tabrizian, 2010)

almost touches the Great Kavir and Gav khooni marshlands several minor basins with infrequent desert stretches.

[3] "Madi"s were dendritic irigations systems branched from the river to agricultural plots and royal gardens. MADIs are essential in agricultural, Industrial and urban development in Isfahan. (Isfahan Water Administration 1993), the MADIs provide 91% of agricultural, 4% of industrial and 5% of urban water requirements .there are seventy seven MADIs branched from left side (north) of Zayanderood river while there are only seventy one MADIs branched from right side (sough).(Sattari et al.. 2003).

The intertwined design of the historical natural system with the perpendicular connection between the river as a natural resource and new urban development and the old city resulted a new urbanization which embraces the landscape characteristics into cultural and spatial perspective.

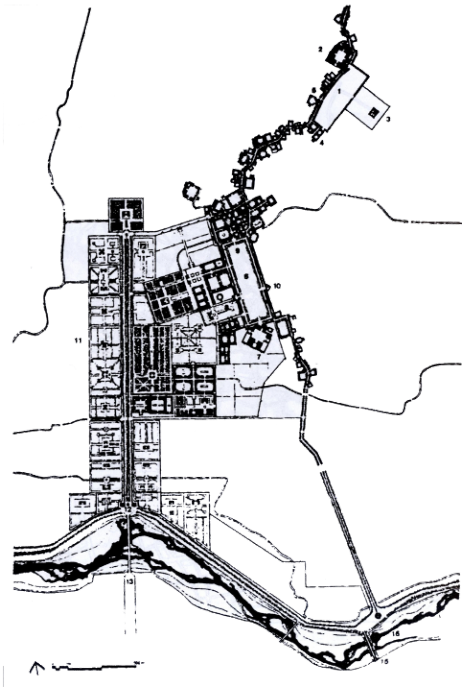

Figure 1. Isfahan and main structuring elements during Safavid dynasty. (Habibi, S., Ahari, Z., 2012). The integration of river to the old urban fabric and the royal gardens in Isfahan.

New Town a feature of modernity

A new approach of New Towns derived from the utopians and the ideas of Howard. *'New Towns are successors to Howard's social city as a regional planning model and address the urban form and economy, as well as the social structure and municipal organization.'* (De Klerk, 2006, p.7) New Towns had different purposes in the developing countries such as instruments for restructuring and de-concentrating the population of rapidly growing metropolitan regions (Atash, 2000, p. 68). The New Town development in Iran can be divided into two periods, the pre-revolution and post war period.

> Before the revolution, New Towns were built on political-military criteria, including residences for industry employees, linked to the strategy of industrial development, and directed at the housing problem of civil servants. After 1979, however, the aims of building turned to controlling population growth in large cities, absorbing the population overflows of those cities, housing the low-income people as well as the employees in the industrial sector, giving a redistribution to industries, and protecting the farming lands around large cities. (Ziari, 2006, p.413)

From the end of 1960s till the revolution of 1979, due to the boom in the oil industry and new economic sectors in Iran, the urban population of Iran had a dramatic increase. New company-industry towns and satellite towns in the periphery of mega cities were implemented. These New Towns were built within a reasonable distance from the mother cities and they were not dependent on any primary rural nucleus. Fuladshahr is located 40 kilometres west of Isfahan and 15 kilometres east of the steel mill complex and in short distance to iron ore and coal deposits. '*This town was planned by Giprogor Company of the former Soviet Union in 1968 under a master plan for the accommodation of the workers of large steel mills.' (Art and Architecture, 1975, p. 55)*

In regards to the industrialization of the Iranian economy, the socio-economic and cultural activities were more focused on this means of production. The location of the Fuladshahr New Town was in an accessible distance to the steel mill company and located in a non-productive land between the western mountains and eastern agricultural fields of Isfahan region. The proposed master plan divided the development of Fuladshahr into two phases, one with the proposed population of 50,000 people in the south and the second phase of 250,000 people in the northern part of the city. The city proposed nine districts and the total of 49 neighbourhoods in which each had population ranged from 3,000 to 5,000 people with different density from four to ten story buildings. Each district proposed to have a service canter surrounded by a large open space that are linked to each other. A canal designed to enter the city in order to connect the city to the river for recreational and irrigation purposes.

Figure 2. Fuladshahr (Aryashahr master plan) Comprehensive plan and Master plan. (Art and Architecture Review, 1975, No. 12, Tehran) The New Town consists of two phases which the Master plan was designed for the phase 1 before the revolution of 1979.

The master plan proposal for the social configuration of the New Town was that the total employed population constituting one-third of the total population of Fuladshahr in a way that 80% of the population were expected to be technicians and workers and 15% to be the administration employees working in the Steel Mill Complex and its related industries.

From plan to action

An understanding of the urban landscape of Fuladshahr can be seen by a critical look at the interdependence actions which happened during the process of development and shaped the spatial and social relationships. In this regard the dynamic processes that shaped the spatial and social relationships will be explored to get to a certain understanding of urban landscape characteristics from the large scale of territory to the city scale of the New Town. *'Landscapes*

emerge from specific geographical, social, and cultural circumstances; that landscape is embedded in the practical uses of the physical world as nature and territory'. (Jackson, in the introduction by Cosgrove, 1998)

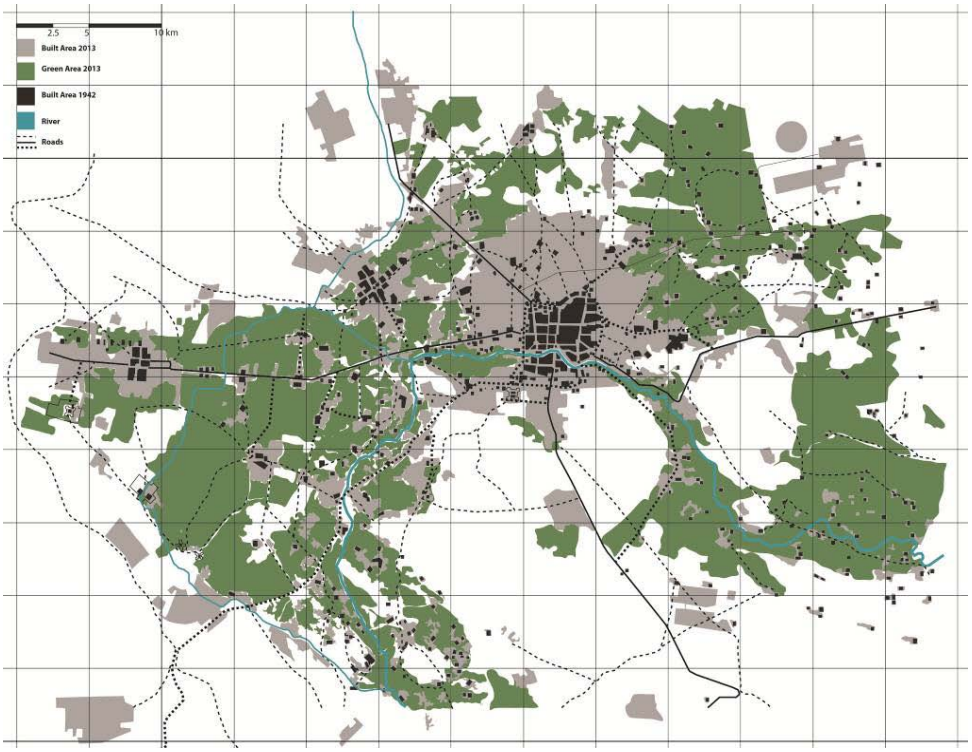

Figure 3. Isfahan Region Growth, 1942-2013. (Source: the author). The growth in the region and especially in the settlements closer to water and agriculture as means of production.

The Pre-Revolution development and characteristics

Fuladshahr construction of the phase one started in 1968 and although a substantial level of funding was provided for the development, by the late 1970s the total completed houses with settled population was for 10,000 people. The practical challenges that experienced in the process of development in the pre-revolution era is related to the socio-economic strategies proceeded in the scale of New Town and the territorial region.

According to the master plan of Fuladshahr, only the employees of the steel mill complex could qualify for living in Fuladshahr and while the development was in parallel to the territorial rural to urban migration in the region, the housing supply of the only New Town of the region could not be used for the need of the region. On the other hand, the housing market of Fuladshahr was not attracting the small and large private investors due to the fact that the housings provided in the New Town were only for rent and therefore the shift in the means of production in the region from agriculture to the industrial practices could not influence the territorial scale. Accordingly the growth of population and the city expansion was conducted in the smaller scale cities and villages within the short distance from the industrial complexes around the city of Isfahan for the job seeking population of the region. *'The region restructures itself to remain competitive and cooperation networks between a region's institutions and enterprises'* (Sassen, 2000, pp. 43) which is in the Isfahan region the shift from natural productivity to the industrial productions in the pre-revolution era shaped the urban landscape of the region. '*A regional project needs to serve various parties thus provide a basis to identify and integrate diverse aspirations and ambitions of private investors, public authorities and multiple civic interest groups. The regional research project thus becomes an exercise in the progressive development of shared insight." (N. Meijsmans, 2010)*

Considering the development in Fuladshahr New Town, the urban spaces on the city scale directs the focus towards the relationships between urban development, spatial condition and ecological processes of the city area. It becomes plain that, in these broader relationships, social processes are part of urban spatial development. '*The emphasis on urban processes is not meant to exclude spatial form but rather seeks to construct a dialectical understanding of how it relates to the processes that flow through, manifest, and sustain it'.* (Corner, 2002) '*This understanding – of the connections between landscape development and urbanization processes – is currently demanding renewed attention and has been taken up by the Landscape Urbanism School'.* (Waldheim, 2006)

One of the spatial characteristics of the housing developed during the pre-revolution in Fuladshahr was the housing typology which according to the original master plan *'assigned one-third of the population to four- to ten-story apartment buildings in neighbourhoods with an open layout.'* (Atash, 2000) Since most of population targeted to live in Fuladshahr were the workers and technicians of the steel mill complex they didn't have the experience of living in the apartment spatially with the open layout which was in contrast with the socio-economic and cultural background of the residents from the privacy and inconveniency of the high-raised apartments. The Fuladshahr designers and planners assumed the employees and the residents of the New Town would have small family size and therefore the size of the housings and the number of bedrooms became a major concern for them. Therefore the problem of inadequate living space forced the residence to change the plan of living spaces in order to accommodate their needs, such as adding the balconies into the indoor spaces. In addition to the housing size, the lack of privacy in the semi public spaces made the development and spatial process slower than the initial plan.

During the phase one of the development, the south eastern neighbourhoods part of district A and B were developed which was in close relation to the designed water canal going as an irrigation and aesthetic for the public spaces and green pockets in the neighbourhoods. This intervention has helped the neighbourhood to get integrated into the nature and having a better weather. This neighbourhood, which is mostly inhabited by the higher income employees of the Steel Mill Complex, having the low raised housing (courtyard houses) with more privacy in their access to open spaces and courtyards. The applicants who were interested to live in Fuladshahr were mostly belonged to the middle and low income workers and the rest had more interest in renting or buying houses in Isfahan city and they were able to commute by their private car daily to the Steel Mill Complex. This is another discouragement for the investors to develop the less compact neighbourhoods and having delays in completing the development spatially in the non-residential uses. This can be seen as another

spatial characteristics of the plan that leads to the social differentiation in the pattern and multiple typology of the neighbourhood.

The Post-War period - A new paradigm for urban change

The Islamic revolution of 1979 and the Iran-Iraq war within a year after in 1980 has brought a lot of changes in the urban process of the Isfahan region and Fuladshahr as the young New Town in the very strategic location. The flow of war victims[4] to settle in the central cities of Iran such as Isfahan region was a major contributing factor in massive growth of the Isfahan city and its New Town Fuladshahr. The unexpected in-migration was a major practical challenge that surrounded Fuladshahr during that period of time.

> Projects or additions and changes to its existing structures and neighbourhoods that either were not proposed in the master plan or did not meet the requirements and the standards of the plan. These additions and changes resulted in the development of neighbourhoods, mostly in District A, that were sub-standard and lacked the necessary public uses and activity areas. (Atash, 2000)

The low-income migrants from the war-damaged areas were mostly inhabited in neighbourhoods were physically, socially and economically different from those in District B that were built according to the original master plan and inhabited by the employees of the Steel Mill Complex and nearby industries. In some cases, they had to live in the under construction apartments and choose an un-finished apartment and some families had to leave together. The new social configuration in the city this time shaped a new spatial configuration for the young New Town and created new features in the vision of the neighbourhoods and the city.

[4] The invasion of Iraq to the border cities of South West of Iran such as Ahvaz, Abadan and khoramshahr forced the inhabitants of these cities to live their houses and move to the central cities of Iran in order to live with their families or strangers with a will that the war will end within a short period of time, while this misplacement lasted lond for 8years and most of these people lost their houses in the bombing over their houses and had to stay in the place they were not culturaly belonged. These migrants they were not always welcomed in the new neighborhoods and they had difficulties in order to find appropriate settlements to live in.

'The 1986 census counted the population of Fuladshahr at 28,728, with the majority working primarily in the Esfahan Steel Mill Complex and its nearby industries.'(Atash, 2000) The Isfahan Region's 25 year master plan, designated Fuladshahr as the second largest urban centre in the region in 1986, and recommended that the New Town has no longer work as a dormitory New Town and has to be a self contain and dynamic New Town with a future population of 500,000 inhabitants by 2010 in an area of 7,000 ha.[5] In order to fulfil this goal, two important changes were implemented in Fuladshahr, one was according to spatial configuration in relation to the problems with high-rise apartment**,** they decided to limit the building typology to four-story apartments and one-two story single family units and in this way they re-designed a major part of the original master plan of Fuladshahr. Since the second phase of development was parallel with the new government and strategy in the country by president Rafsanjani, the New Town followed the governmental slogan of 'Construction' therefore the City Land Organization allowed the investors (private and public) participate in the development of Fuladshahr and for the first time the housings provided in the New Town could be purchased.

*'The end of the war with Iraq coincided with the implementation of the first Five-Year development plan for the period of 1989–1993.'(*Ziari, 2006) *'The plan identified economic growth and efficiency as its most important objectives; others included controlling population growth, optimizing resource exploitation and the completion of unfinished projects.'* (Amirahmadi, 1996, p. 123) '*The government decided to prepare the second development plan for the period of 1995–1999. It placed top priority on economic growth and did not address its spatial dimension and performance. The second plan emphasized industrial growth in areas with an adequate infrastructural base.'*(Ziari, 2006) therefore the establishment of the New Towns located near the large cities in 1986 in order to address New Towns to absorb the surplus population of these cities. In this regard, the Ministry of Housing and Urban Development announced construction of 18 New Towns which they are located in the areas owned by the state. Although Fuladshahr was established as a company Town, but according

[5] Fuladshahr New Town Development Company, 1992

to its location and access to main industrial hubs of the region was selected as one of this New Towns beside two other New Towns of Baharestan and Majlesi with 15 and 65 km distance from the city of Isfahan.

The revised master plan targeted the middle and upper middle class population to live in the New Town and it was mainly focused on households working in the nearby industries. An adaptation of the plan to the new economic changes, which was the result of the war related national problems, seemed necessary at that time in order to attract a new population with different social background to Fuladshahr. The fast growing rate of population in this period and the high-price of land in the city of Isfahan attracted the house seeking families to the New Towns around Isfahan region. By a close look at the location of the three New Towns of Isfahan and their succession in absorbing the population, the parameters of the distance from the major city and their accessibility to the means of production were the key points in that stage of time.

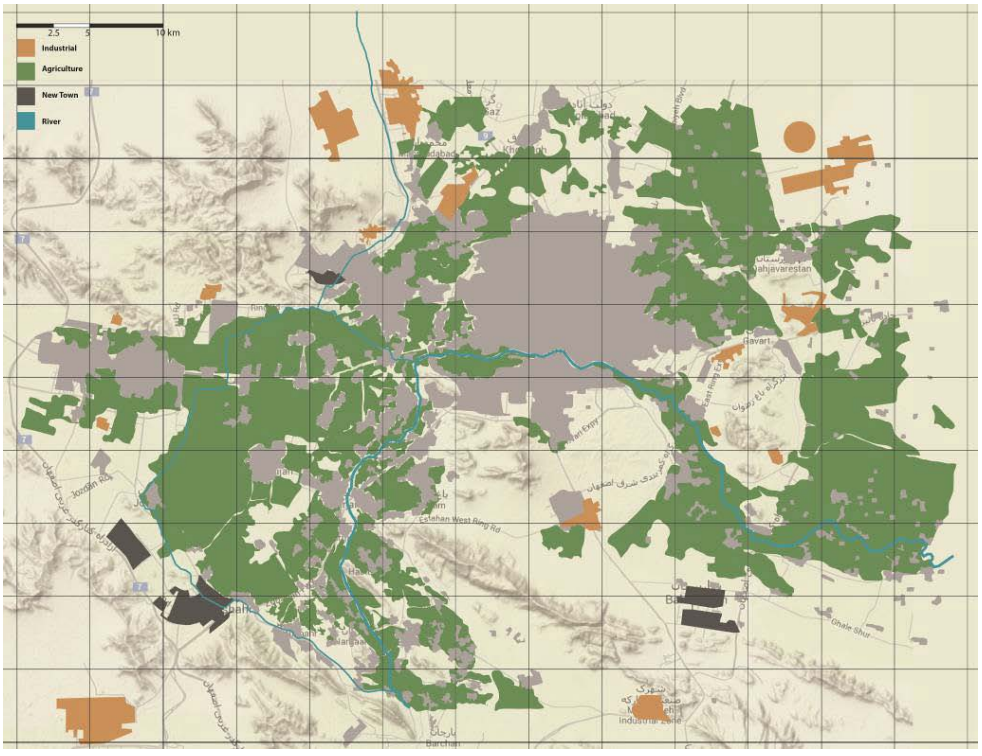

Figure 4. Productive Landscape. (Source: the author.). The location of New Towns and their relation to the means of production in comparison with the other Cities in the region shows the intense relation of productive landscape and urban growth.

The Justice Era - The Time for The Low Income

The population of Fuladshahr New Town according to the Company of Iranian New Towns in 2002 was 45,000 people, which shows the growth rate of 18% and the number of migration from other part of Iran specially Isfahan region to the city, but on the other hand, according to the second master plan of the city the target population by the year 2010 should reach the 500,000 that means a major part of the New Town was still waiting for further developments.

The age pyramid of Iran demonstrates the widest category in the age between 25-35 which are the generation were born during the war and after the 1979 revolution. These huge numbers of the population who are in the age of marriage and independence have a massive need for housing and job. This is in parallel with the declining family size of the Iranian family, therefore more housing units are needed.[6] Considering the economic crisis and the inflation due to the western sanctions against Iran, finding housing in the major cities for young families and low income households became impossible. At 2006 by the beginning of the Ahmadinejad government, his major propaganda for satisfying his followers (as a populist president) was the introduction of affordable housing projects known as Mehr Housing which is the 99 years leasing housing on the governmental lands outside of the major city limit. New Towns, due to their unfulfillment in attracting the population could provide a number of available lands for developing the Mehr Housing project.

Mehr Housing Project targeted the free lands in the northern part of Fuladshahr in the district D, where in the first and second master plan was placed as the last phase of development and therefore had the least infrastructure ready (almost empty land). The number of 32,000 housing units[7] which were designated to be built in Fuladshahr are mostly following repeating pattern of eight to ten storey high apartment arranged along a relatively wide infrastructure grid create a uniform environment in District D consisting of 10 neighbourhoods. The main north-south access of the city which works as the main spine for connecting the

[6] Journal of Housing Economics, (2011). No 47-48
[7] Fuladshahr New Town Company 2013

open spaces and public facilities is connecting the core of the Mehr District to the old city centre of Fuladshahr.

The introduction of new housing typology of the new District of Fuladshahr and its distance from the main activities and recreational centers, and the most important one, means of production, brings out the question of spatial integration of the new development of the city. Although the New Town showed a high level of flexibility during the last four decades of development through different political and social configuration, access to a productive landscape of agriculture and later industries were the key for the calibration of the city and following in the social formation of it. But now the new pattern of homogenous living style with their concentration on the same needs requires a new means of production in order to be able to compose new spatial and social characteristics of the city after passing various changes.

Interpretation Toward Construction

> Maps can do more than depict the interrelationships of urban landscapes; through the ways and means by which these relationships are depicted they can influence the way such space is conceived. In this, maps are never a neutral presentation of a given reality but rather present a particular concept of space and thus also construct it. (Löw, 2007, p.68)

With a focus on landscape characteristics of urban development, it comes to observation and comprehension that the spatial conditions of landscape has an exchange with the urban development of the city. As Cosgrove argues, ' *Landscape as symbolic systems and as ways of seeing needed to be seen in relation to 'social formation'*(Cresswell, 2003) hence the sequence of the social and cultural circumstances that had occurred during the practical uses of the spatial spaces of the city has shaped the landscape of Fuladshahr. This process of evolving and adaptation has formulated a complex network of political social and cultural identities where can be seen as a landscape of inter-relations. ' *Landscape ... as a mosaic of the "total spatial and visual entity of human living*

space" that integrates the environment, living systems, and the man-made'. (Corner, 2006, p. 61)

The spatial formation of Maktab Isfahan had followed the cultural characteristic of productive landscape of the River and agriculture following the social and cultural activities in the city during the 17th century, while the landscape of Fuladshahr New Town in the 20th century, followed the new industry as the new mode of production and consequently the social and spatial production which came as the result. In the territorial scale, the Isfahan regional growth during the last 6 decades shows a continuing correlation of the urban expansion of Isfahan and the small and large size cities around it in relation to the means of production and centrality and accessibility of this landscape. The spatial feature of the region (the topography, river-shape and the agriculture) has structured the settlements in the region and although the master plan had tried to put a limit for the city growth, the consumption of agriculture fields and an excessive growth of the major cities such as Najafabad and Khomeinishahr are clear (Fig 3).

In the scale of Fuladshahr New Town, the influence of the social configuration of citizens, to some degree, has shaped the spatial structure of the city. Different political and cultural ideologies brought different typologies and spatial characteristics for Fuladshahr. The level of ownership and access to common uses has shaped a new landscape which gives the possibility of an alternative understanding of the New Town. The way landscape circulates as a medium of exchange, a site of visual appropriation, a focus for the formation of identity. (Mitchell, 2002)

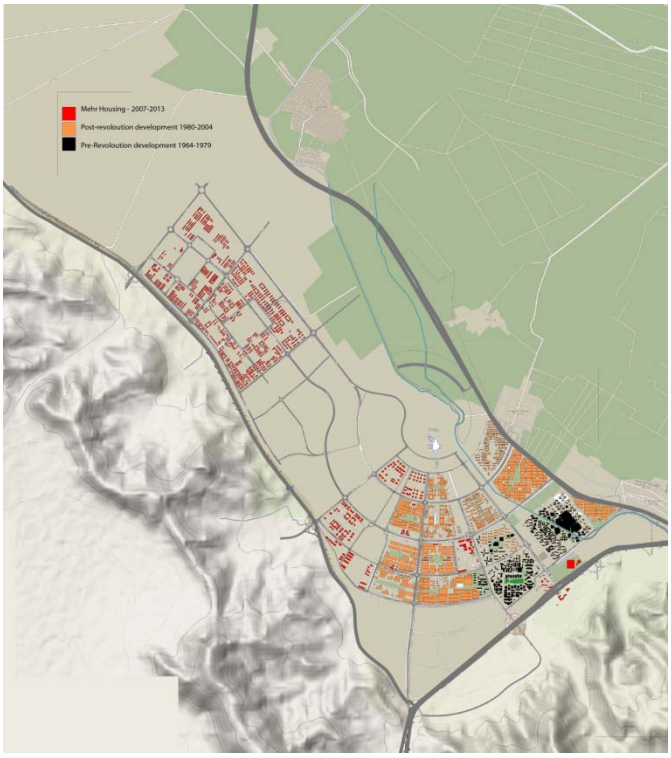

Figure 5. Fuladshahr Evolution. (Source: the author). The typology of residential buildings and their access to open spaces and their share of nature is shown during the three phases of development in the New Town.

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BRITISH NEW TOWNS THROUGH COMPARED EXAMPLES
Three examples: Harlow, Thamesmead and Milton Keynes.

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Abstract

Great Britain has always been a pioneer in the field of urban planning during key stages in its history, the Garden City (in the early twentieth century) and the New Towns (once the WW2 was finished) are two models that have been decisive in our urban culture, besides having been used with a great profusion internationally. The influence that throughout the twentieth century the development of the Modern Movement had, is another determining factor of the course of the mentioned models and their commitment with these new resources in the architectural and urban settings.

The experiences of Harlow, Milton Keynes and Thamesmead shed light on these and other topics of interest for future developments. By deepening into aspects as their instrumental and compositional definition, their own urban development and programmatic aims, the shapes of each settlement and its relationship with the territory, their urban structure, their compositional units, the paper and settings of the civic centres, their architectural typologies and the landscape treatments, allows us to make a compared diagnosis of these experiences and of some data which demonstrates the compliance of their aims and how they have evolved, their current situation and their future expectations.

It is about making a current reading of them in terms of the greater or lesser implications of their ideologies and their possible influence on the challenges that the urban planning and design is facing nowadays. The New Towns are an alternative to the sprawl of large cities and avoid a dispersed growth on the territory, a problem still to be resolved and inherited from the last decades in Europe. The recommendations for a sustainable development advocates not to occupy the greenfield, but also defends the compact city in a precise location with a certain territorial autonomy.

Keywords: new towns, urban design, planning, Britain, urban morphology

1. Topicality of the new towns

The new towns have been revised in the United Kingdom as a base for the development of the Growth Areas. The latest publications on the subject such as the study Transferable Lessons from the New Towns of the Department of Planning Oxford Brookes University (2006), specific conferences as the New New Town held in London in February 2008 or this International Conference emphasize the importance of its revision from the current perspective.

The focus of this paper[1] is made from a particular aspect, the urban practice. Congestion and informal growth of the city, with other nuances, remain as problems of the 21st century as they were in the period from the 50ies to the 70ies[2]. The vision that sustainability gives us now overlaps with the concerns at that time which were looking for a new environmental balance and respect for the pre-existing conditions that impacted positively, not only on the quality of life of citizens but also in the world quality.

The new towns have more common denominators in their framing than in their physical materialization, in part, by considering the geography and landscape as elements of identity and prevalence over planning and by assuming them as project resources. They tested new urban morphologies incorporating the alternatives offered by the architecture and urbanism of the time to resolve the inherited conflicts.

Having minor commitments in terms of the prevalence of consolidated urban morphologies on which to grow, allowed them to respond more freely to: the greater rationalization of mobility and transport systems, the priority of public spaces, the equitable and egalitarian distribution of services and facilities, the concern to establish healthier environments, to live in better equipped and

[1] Libraries and institutions consulted for this work have been among others, the library of the Polytechnic University of Valencia, the RIBA Library in London (Royal Institute of British Architects), the library of the City Discovery Centre of Milton Keynes, the Central Library of Milton Keynes, several publications of English Partnerships, the national archive of the BFI Southbank library, where many explanatory and advertising videos of the time can be found, and the library of the TCPA (Town and Country Planning Association).

[2] Lewis Mumford, (1961), alerts us about the disfigurement and degradation process that occurs in the urban and rural landscape not being able to find the way to restore the ecological balance that originally prevailed between the city and the territory.

modern dwellings as well as providing more democratic participation and job opportunities.

Today, urban problems have worsened and the greater instability of our territories caused by the indiscriminate urbanization calls for measures, solutions using our best resources. Strategies are needed for a balanced regional planning, consideration of ecological and heritage value of our landscapes, ensuring access to information and equal opportunity for all citizens, sustainable mobility, higher levels of public participation, etc.

Resources that can not ignore the relationship between historical processes and spatial, deliberate and delimeted forms (Perla Zusman, 2008). In the Greek culture only the limited, with a known beginning and end had a form, and nothing else but that which was shaped could be considered good (Rubert de Ventos, 1998). The diffuse city would be the counterpoint to this principle and the new towns their best correlate. This is not defending an immutable and frozen image of the urban, but an evolution in patterns of relationship in the formal definition that qualifies it as an urban addition.

All urban characteristics of the new towns can serve as a prior baggage to think and plan forms of urban development. In addition to the political efforts that allowed the planning process to start up, the legal provisions which revalidated it and the work brought by the public institutions, its own physiognomy or the way it got materialised can enlighten us about their major or minor achievements as a key of practical understanding.

2. Harlow, Thamesmead and Milton Keynes

The morphological characteristics of the different generations of new towns[3] in this paper are exemplified in three of them, each representative of one of the

[3] Several authors classify the new towns in three generations, others distinguish only two. The classification chosen is based on: Mark I-first generation, Mark II and Mark III, second generation. The new towns of the first generation or Mark I as Harlow, had a population between 20,000 and 60,000 inhabitants. The second generation had a maximum population of 250,000 inhabitants and were designated since 1960. This second generation is divided into Mark II and Mark III. Mark II (Thamesmead) has a population between 70,000 and 100,000 inhabitants. The new towns of the Mark III (Milton Keynes) meet the requirements marked in the study of South East England, 1964.

Marks or phases of British new towns. One of the first new towns that belongs to the Mark I is Harlow. One of the latest and belonging to the Mark III is Milton Keynes. And as a representative of the Mark II, Thamesmead was selected. It is defined under the peculiarity of being a new town in town, as it is administratively within the boundaries of the Greater London Council, but responds to the same ideals as other new towns: self-sufficient, with provision of employment, green areas, shopping centres and public spaces for the preferential use of their population.

	HARLOW	**THAMESMEAD**	**MILTON KEYNES**
LOCATION	37 km northeast of London	Belongs to the Greater London Council and it is inside the London Greenbelt	72 km northeast of London
OBJECTIVE	Decentralization of London	Decentralization of London	Decentralization of London. Growth area of the South East Study
DESIGNATION DATE	25th March 1947	1964	23rd January 1967
DESIGNATED AREA	2,558 hectares	650 hectares	8,870 hectares
EXISTING POPULATION	4,500 inhabitants	none	40,000 inhabitants
PROPOSED POPULATION	60,000 inhabitants	60,000 inhabitants	250,000 inhabitants

They are characterized by the existence of large pre-existing areas that influenced their forms and locations and their populations reach up to 250,000 inhabitants.

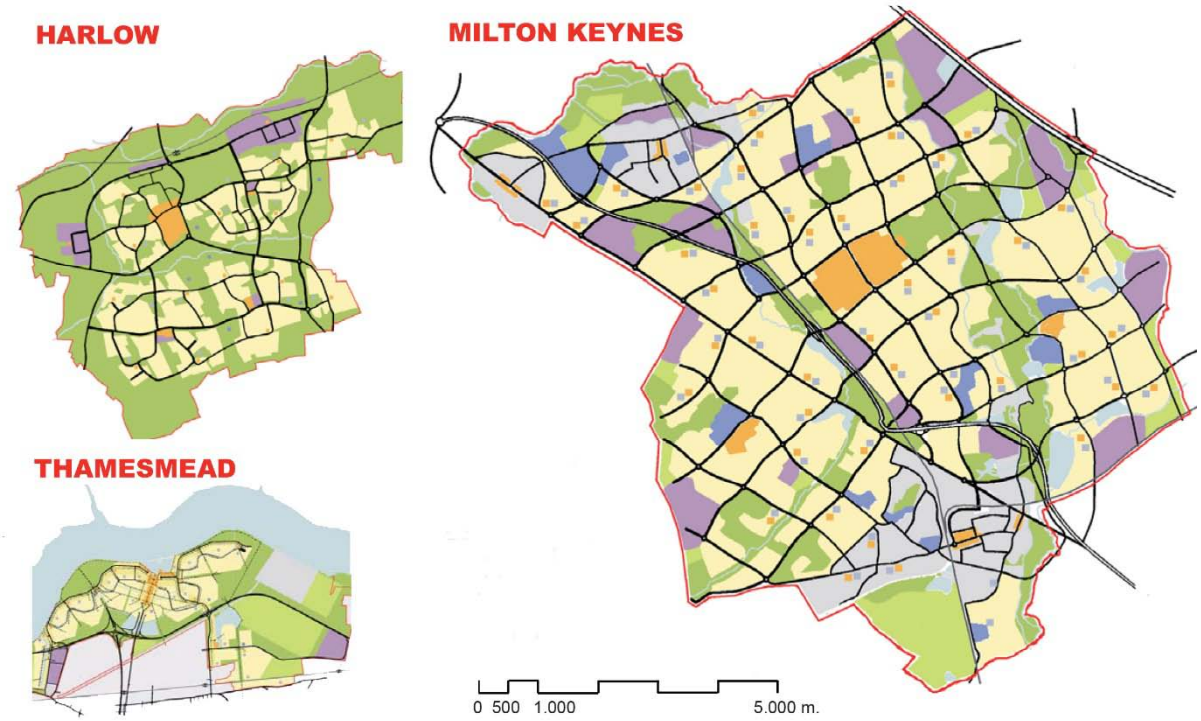

Figure 1. Land use and scale comparison of the selected new towns. Source: the authors, own elaboration.

HARLOW

Location

Harlow was built next to two existing agricultural settlements of approximately 4,500 inhabitants, Old Harlow and Potter Street, located between London and Cambridge. The existing landscape influences the structure and design of the city and, in this sense the project is subjected to the geography and to its qualities as a base for the quality of life desired for the new population.

The city is placed on the south of River Stort valley and of the railway along which the industrial zones were located. A second valley, the Todd Brook, remains in the middle of the designated area incorporating greenways that give easy access to the town centre.

Characterization

Even though it was a new city, its author F. Gibberd did not want to create a monotonous or a city with a lack of identity[4]. To achieve it he based his design on the history and the landscape of the territory in which it is inserted to create spaces and residential areas with recognizable attributes.

Road system

The plan defined a hierarchical system of roads for motor traffic: the territorial roads which connected the city with the region, the urban distributors that facilitated access to the town centre, axis that connected the various parts of the city together and finally two categories of minor roads, the internal streets of the four neighbourhood units and the closes that gave access to housing. The superposition of a primary radial system, which communicates the city with the exterior starting from the centre and bordering the clusters of industry and housing, and a secondary with a north-south and east-west directions covering the designated area allowed in this intermediate scale a very high connectivity and a clear and orderly system regarding movement options.

Public transport kept a radial itinerary in order to connect all residential and industrial areas with the centre[5]. An independent system of pedestrian and bicycle paths that went through and connected the residential areas with the rest of the city was also established. Therefore, a system that chooses the separation of traffic, not only motor and pedestrian (freight transport had its own channels: rail and road) was defined in order to avoid traffic through residential areas and to facilitate where possible, the green routes.

[4] The structure and zoning of the city arises from areas of employment, housing and recreation connected by a road system and surrounded by an agricultural greenbelt. The contrast of the buildings with nature is a key item in the proposal. Therefore an effort is done to prepare a landscape design in which the built up areas are cut up into compact units, in which the open spaces, parks and playgrounds spaces belong to the overall landscape design, incorporating the history and tradition of the place.

[5] The road network was designed assuming that only the 10% of the population would own a car.

[6] Hare Street with 2 neighbourhood units next to the civic centre, The Stow with 3 units adjacent to the existing settlement of Old Harlow, Bush Fair with 3 units next to the also pre-existing Potter Street and Staple Tye with 4 neighbourhood units.

Compositional structure

The structure was organized by districts[6] and neighbourhood units. Four compact and equivalent residential districts were created compensating their sizes with the existing settlements and the spaces with a higher intensity of use. Resources and services were also distributed homogeneously integrating centres, sub-centres and primary and secondary schools.

Residential areas took as reference projects the low density compositions of the garden city, while the town centre assumed the formal criteria of modernity. It was the first pedestrianized new town centre which incorporated a high density created with building blocks of different heights and simple volumetries which acted as an important visual reference. The parking areas and buildings were located on the perimeter, just where the pedestrian routes with crossings at different levels began.

The town centre is developed along a north-south axis and as a sequence of spaces and buildings with different functions: on the north there is the market square, in the middle the commercial area and the civic centre on the south giving access and connecting it with the agricultural gardens across the road.

Figure 2. Harlow town centre. View of a pedestrian Street, it can be observed how the continuous cantilevers help to distinguish the two scales in the buildings, the urban and

the commercial. Diagrams analysing the composition axes of the centre and the network of interconnected public spaces. Source: Photograph and diagrams, the authors.

Landscape development

Landscape is a fundamental aspect of the proposal. Green space is the key element over which the buildings rise and gather, it provides unity to the project. The valleys are connected with green paths of ranging entity and connect the different districts and neighbourhood units.

The open fields, natural forest and landscaped gardens form a natural framework that harmonizes and strengthens the uses and image of the built elements of the city. An interesting fact is that everybody possesses collective green spaces at a distance reachable by foot from their homes.

THAMESMEAD

Location

The urban area to develop was located on the east of London and arises from three distinct parts: the area occupied by the Woolwich Arsenal on the west, the Crossness Sewage Works on the east and between them a wetland and floodplain area. Running through these areas there was a highway, as the southern boundary a railroad and the presence of the River Thames on the north, which offered a river frontage of 5.5 km long[7]. High expectations were created because of its close location to the centre of London and the opportunity to regain those lands along the river.

Characterization

The marshy nature of the area and the existing pollution in the underground required a big effort in cleaning the area to include buildings, which could not exceed thirteen heights. A system of lakes and canals was created to stabilize

[7] As a scale reference the Greater London Council in its promotional literature compared the designated area with the double of the area occupied by Hyde Park and Kensington Gardens together, and the riverfront length that runs from the Tower Bridge to the Tate Gallery.

the water storage and to protect the land against possible flooding, elements that also enhanced the quality of its landscape.

It was intended to articulate under a unitary design the green and residential areas, the schools, the playgrounds, the pedestrian and bicycle ways, the commercial and social centres, the churches and industry. Each of the functions was segregated from the others and had a strategically assigned spot. The industrial areas constituted one of the main objectives in Thamesmead, seven and a half hectares were reserved for them.

Cumbernauld exerted some influence on the design of Thamesmead as well as the unbuilt new town of Hook when proposing an increased density of housing and a shopping centre developed at various levels.

Road system

The existing road system and rail tracks served as a support for urban and territorial communication. The local system gave access to the entire area through a double road circuit, the principal arranged along the river and connecting Abbey Wood station with the civic centre, a linear and continuous path along the whole scheme; and the second leaning on it and giving access to the housing with an articulated sequence of road rings.

An extensive network of pedestrian and bicycle ways protected from motor traffic unify the whole project. The footpaths on the ground floor connect the lower buildings and open spaces and the ones on elevated walkways the high-rise buildings. A local public transportation system connected the entire area and a parking space per dwelling was provided.

Compositional structure

One of the main objectives of Thamesmead was to achieve a balanced society in which the maximum number of families would enjoy their own gardens and outdoor spaces[8]. To achieve it the master plan included linear high-rise buildings

[8] The density varied depending on the type of building. Terraced houses had 125 individuals per hectare compared to 350 individuals per hectare in the apartments and maisonettes.

which acted as a screen to protect those areas from the Thames winds and the traffic noise.

Phases I and II adopted a clear composition by closely linking the various parts together. A green north-south axis articulated all the elements of the composition from Lesnes Abbey to the lake, two perpendicular axes to it sorted out the rest of the project with the alignment of their towers and the rhythms created between open spaces and buildings. Everything is organized by repetitions, series and modules, setting precise three-dimensional relationships between geometries and full and void spaces, all of them characteristics of modernity.

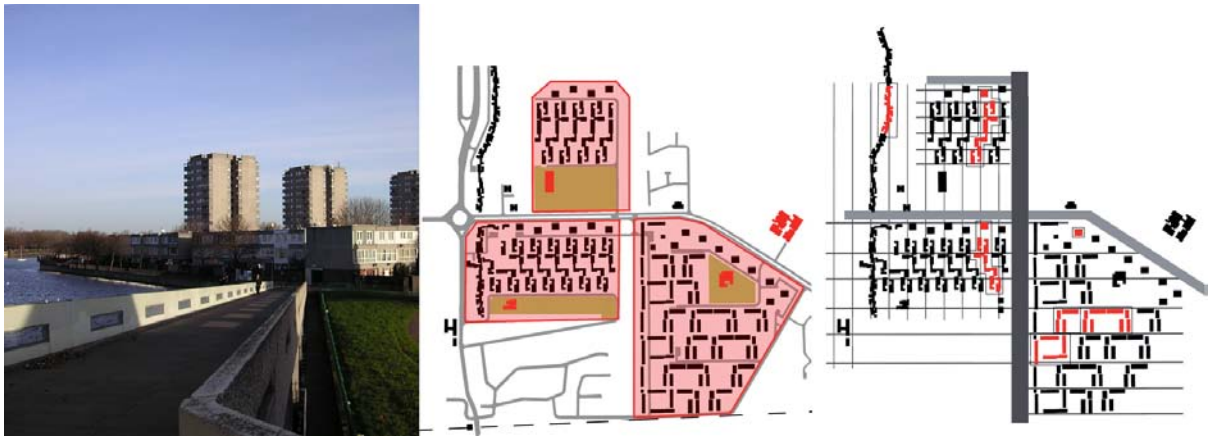

Figure 3. Thamesmead Phase I. Lake view from one of the elevated footpaths. The three neighbourhood units with its associated schools. Diagram analysing the compositional axes and units, created by repeated modules which together give order and form the project. Source: Photograph and diagrams, the authors.

Landscape development

Being a project that concentrates its density it leaves large areas without buildings which are designated for parks and outdoor spaces, some of them with natural vegetation.

The river front sets a major façade, and together with the artificial lakes strategically located on the edge of the area, allow for a recreational use of them and enhance the landscape. These lakes, interconnected by canals, solve the drainage of surface water, retaining it and giving a solution to the environmental aspects of the project.

MILTON KEYNES

Location

The new town is situated equidistant between London and Birmingham, and between Oxford and Cambridge, occupying 8,900 hectares. The A5 crossed diagonally the area and together with the railway and the Grand Union Canal were the main transport infrastructures.

The existing towns[9] were integrated in its structure keeping their own identity. The valleys of Loughton Brook and Ouze were also part of the designated area. The area had a plain on the north and it rose its altitude to the west and between the valleys.

Characterization

Its design was conceived as a very flexible strategic framework to meet the future needs. It assumed low densities in a green environment with a maximum of three floors, except for the buildings in the civic centre which reached up to six floors.

It incorporates industrial land that is distributed in a segmented way throughout the city, either occupying one of the super blocks or sharing it with housing. It also includes other uses of a regional scope. The sub-centres of activity are shared between adjoining neighbourhood units.

Road system

The use of the vehicle determined the master plan approach with a road grid of 1km by 1km axes which was adapted to the territory in a respectful way allowing to incorporate residential areas of similar sizes.

The proposed grid incorporates one or two accesses to each of the superblocks connecting them to the roads that provide access to housing and local centres. A continuous system of bicycle paths and pedestrian areas completes the network.

[9] Bletchley, Stoney Stratford, Wolverton and New Bradwell, and thirteen smaller towns or villages that had a total population of about 40,000 inhabitants.

Compositional structure

The neighbourhood units[10] were designed independently by different architects so a wide variety of types and composition structures were created. From units with compositions made of series, axes and repetitions which ordered all its parts to the typical Garden City clusters. However, they all share some principles set in the master plan: similar areas for green spaces[11], accesses to them from the main road or common facilities[12].

Figure 4. Fullers Slade neighbourhood unit. View from the north-south axis. Land use. Diagram of the units and axes used in the composition. Source: Photograph and diagrams, the authors.

Landscape development

The quality and quantity of the green spaces in Milton Keynes is one of its main achievements. About 1,800 hectares of green space and 600 hectares of parks are distributed around the city. The green and the buildings are considered as complementary elements.

The landscape incorporates a wide variety of elements and its green areas constitute a continuous urban, agricultural and forest system that transcends

[10] The size of the neighbourhood units was based on previous experiences, 560x560m superblocks of Brasilia, or the residential sector of Chandigarh of 800x1200m.

[11] In each of the quadrants of about 100 hectares, one to two hectares are occupied by local parks and one of them is located near the facilities.

[12] Some of the relevant examples are Netherfield, Coffee Hall and Fullers Slade.

beyond the city limits[13]. The lakes and ponds, interconnected by canals were integrated in the proposal as part of the solution to control the waters and as recreational areas. The vegetation next to the road grid system not only serves to protect and as a transition element between uses, it also plays a prominent environmental and landscape role.

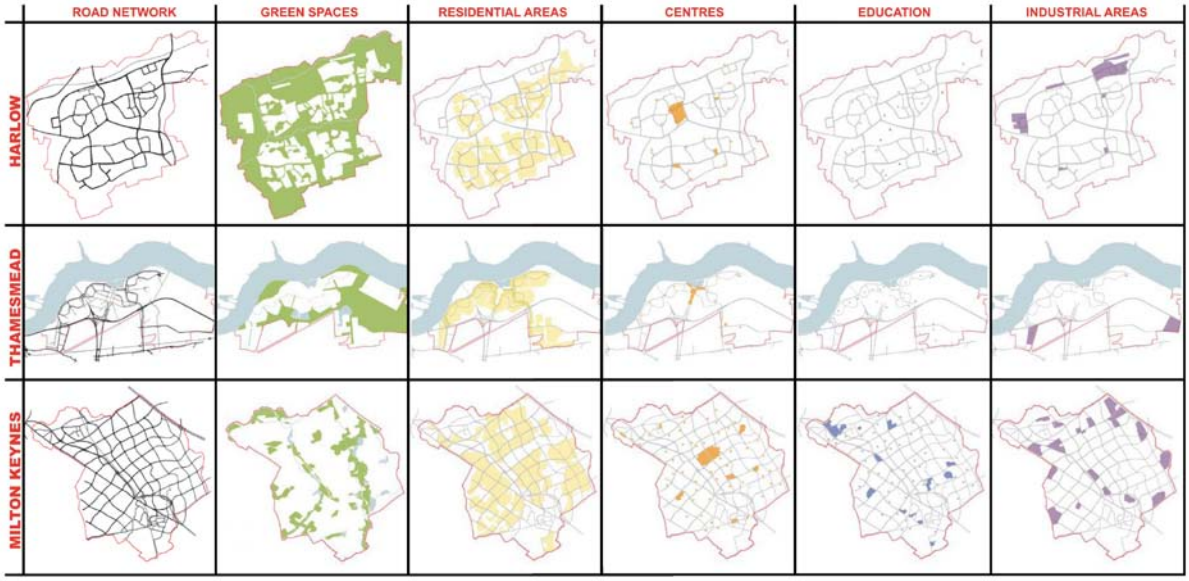

Figure 5. Comparative analysis of different aspects of the selected new towns. Source: the authors.

3. Conclusions

Territorial and local planning scales

The new towns tried to promote the rational distribution of population flows and activities to implement new territorial equilibriums to avoid the characteristic dysfunctions of large agglomerations.

The current guidelines of sustainability claim the development of a balanced and polycentric system of cities. The territory may be the support of concentrated

[13] Three types of parks can be distinguished according to their area of influence: the city and the region ones, the areas that serve a district and the low density areas. At a smaller scale, there are the local open spaces in the residential areas, where playgrounds for children are located. All of them are connected together and with the territorial parks.

urban units of a controlled size and hierarchical within a regional system, but not a continuum of urbanized fragments[14].

It is the underlying problem since the late twentieth century. Resources for mobility which provide a comprehensive network of services and transport infrastructure, and the ubiquitous forms of communication and information allow the random choice of places for all uses, assuming that the territory is a large isotropic and malleable area.

Town and country relationships

The new towns were cities linked to a territory and often participated in the rural world to the extent in which they recognized the existing heritage values[15] and the environmental qualities.

It is curious how the new towns, heirs of the Garden City movement which promoted the move from the traditional city to the countryside, are a reflection of a much stronger idea of the urban than the postmodern urban rhetoric of the disseminated areas. Today, this phenomenon threatens the gradual isolation of rural life and the disregard of the cultural and natural values of the area with which it is identified[16].

Urbs & Civitas

The new towns intended to cover the basic needs of citizens under their capacity of being both a resident, a consumer of spaces, and a citizen, a member of a self-organizing participatory democracies[17]. The inseparable relationship

[14] For years, the urban dispersion policy has been translated into pure consumption of images and the city generated as a result is nothing but the assembly of thousands of different individual responses who face problems difficult to evaluate from a generalist perspective.

[15] Their treatment and planning is liable to also to the principles of Howard, which refers twice to the rurality or to the incorporation of the qualities that the countryside could offer the city.

[16] Among the Guiding Principles for Sustainable Spatial Development of the European Continent (CEMAT, 2000) should be emphasized the one of "improving rural-urban relations", to try to prevent progressive division of the relations traditionally held by that pairing and that guaranteed a mutual reinforcement of the qualities of the other and certain balance in the development of the territory.

[17] L. Mumford support initiatives of the new towns and the community legacy of the principles of the Garden City as it understands that participation in the life of the city is the real heart of the existence of the city.

between the two terms, physical and social, allows to defend certain compromises in the shaping of their projects which tilted the form and the functional and citizen coordination of their districts and neighbourhood units.

Today, it is all about doing or remaking the city so as to facilitate cohesion and social relationships but also its readability and functionality. The desolation and neutrality that prevails in globalized landscapes is hiding the territorial identities and the history of their social organizations, reaching a point where we can see how the urbanization process is distorted and becomes a mere mechanism of graphic design[18]. Therefore, an Urbs that does not add a sense of place under which a community may feel reflected, does not provide a participatory and collaborative Civitas in the defence of their environment.

Nature and city

The three selected models maintain very close relationships between the created landscape and their territory. The valleys and the incorporation of green in the urban fabric of Harlow and Milton Keynes[19] , or the river, the lakes and green areas in Thamesmead. In all of them the artificialisation of the developed land was compensated with the incorporation of natural elements and green areas. The treatment of the landscape and the environmental work was a starting and important point in the master plans.

It is necessary to set out an urban planning that respects nature and preserves the natural structures that sustain the planet's biodiversity and the vital and cultural framework of our towns. For this reason, the new towns again serve us as a reference as they have respected and enhanced the previous territorial conditions, bonded the built and green areas and have treated the landscape as a factor of environmental balance and collective identity.

[18] Because urban and architectural discourses are trivialized, or because the appropriate answers to some social programs and to the different conditions of each case are avoided.

[19] Even in this case, the nature is perceived much more than the buildings that rise behind the green corridors running along the road. As the Green Paper of the urban environment points out, the occupation of greenfield is not a part of the current discourse of sustainability, but it is the conservation of structures of natural areas and the incorporation of a coherent system of green spaces.

Density and mix of uses

In the three examples we find different densities. Thamesmead presents denser groups of buildings and blocks than the others, in which terraced houses and clusters prevail. The Garden City and Modernity endorsed different densities and two ways of conceiving the required distances between buildings: one, to protect the privacy and continuity of landscape and another to restore the natural elevation of the land and to ensure an optimal and natural air acclimatization. As for the mix of uses, they incorporate areas of centrality hosting the spaces for the community and the productive zones in well connected locations.

Sustainability demands the distribution of uses to be continuous and to pervade throughout the urban fabric. The inconvenience to housing because of its proximity to areas where the population gather for group activities should also be avoided.

Density, concentration, compactness today are concepts that take us back to a partial image of modernity[20] or the traditional city. We have historically suffered from an excessive accumulation of population, historic centres hardly ever have been an example of a healthy city. And that has resulted, in part in the mass exodus of the population to suburban areas. Today, sustainability is more determinative as to the mix of uses within the urban space[21] and to densities rather than forms of action to ensure the compactness, something to be set against the spread of the dispersed, a city model which expresses itself unequivocally.

Urban structures and public spaces

In the three projects studied underlie a control of the shape and the distribution of uses faithful to the principles of the urban culture from which they evolve. Balanced and unitary layouts that maintain relations and recognizable hierarchies. The relationship systems between the structure elements: road, green, facilities, plots, buildings and open spaces ensured the overall readability of the project and the achievement of general interest of the objectives. Their

[20] The works of Bruno Taut for the German Siedlungen serve us as a positive reference.

[21] Currently and in many cases, industrial production is compatible when linked to innovation and technological development with other urban uses.

planning was materialized through the urban project and the landscape thus avoiding the disaggregation of the urban space and the aggression on the territory.

Today, the opposite trend arises from an imprecise regulation and arbitrary spatial relationships that generate dysfunctions in the territory and a lack of coordination in the forms. Planning has not been able to provide a structure to a large part of the new forms of urban growth. The lack of clear references in its configuration has generated a disciplinary crisis before which only the sustainability appears as a framework from which to succeed. Its principles, ecology, public participation, conservation of nature, or more specifically the aforementioned urban compactness among others, shed light on new ways of thinking and to address the current problems but do not resolve how to project urban systems.

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TOWNS-VILLAGES-HAMLETS: NEW FOUNDATION CITY IN ITALY DURING THE FASCISM PERIOD
Design Paradigms for a New Development

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Abstract

This paper aims to study the "foundation cities" of the fascist regime in Italy with the particular attention in the Pontine Plain, in the regions of Sardinia and Apulia. These new kind of city-villages appear united by ambitious proposals of land transformation and characterized by a peremptory and constant remodelling of the natural and agrarian landscape, promoting with their foundation a settlement compound of other towns, farms, farm houses, new villages, through a long-distance political coordination extended on the territory. To these city-villages a shared settlement role is recognized, due to a "design" that tends to narrow down in the "redeemed" plains a centre or a system of multiple centres, on which converges and from which branches or on which "is sustained" a network of streets, roads, canals. On the territory, all punctuated by the orthogonal grid lines of the canals, finds place the settlement and production unit, that is the farmhouse and the farm. To a defined number of farms correspond a village, to a number of villages, a city. The city, a privileged point of the territory, is intended to receive the most public functions without ever losing his contacts with the campaign, and represents the image and the urban reference for settlers scattered in the countryside. A total intervention therefore able to invest in a wide range of sizes, from the structure of the territory to the urban model for a new lifestyle, a new man.
The "foundation city" so analyzed, intended as the representation and creation of a new reality, becomes an element of acceleration as part of a new development, capable of triggering new models, of creating new links with the production and of regaining a functional reorganization through the urbanization of the countryside.

Keywords: Foundation City, New Town, Urbanization of the Countryside, Alternative market, New Development.

> The Fascism, *[...]* just like the Church, *[...]* has entrusted the Arts the task of embodying and glorifying achievements of the spirit in the physical and even somewhat spiritual images. The task of concentrating this mythical symbol in the physical reality was entrusted to the architecture, the most concrete and the most symbolic of the Arts.
> *Margherita Sarfatti*

Italy of the 1930s was still a country more rural that urban, dominated by chronic backwardness, underdevelopment and illiteracy. Furthermore, it was strongly affected by an economic crisis and the rising unemployment. In this situation, the interventions in the so-called "wet zones" - i.e. flooded or swamp areas requiring hydraulic and agricultural reclamation, was an enterprise of considerable importance and a fertile ground for the seeds of Fascist regime's ambitious projects for the structural modification of the Italian territory.
The reclamation project was not an exclusive idea of the Fascism. It was already about in the early twentieth century, but with poor results and inevitably crushing against the costly organisational and management problems. These investments have not always gone well, especially in the areas worked by private consortiums, where hydraulic sanitation efforts were hardly ever followed by cultivation, construction of facilities and infrastructure and their full inclusion in the various economic systems. The principle implemented through the "integral reclamation" project was trying to solve this problem. 1926 saw the enactment of the Act on Land Reclamation, which divided the territory for reclamation into districts. Followed, in 1928, by the "Mussolini Law" conceived by Arrigo Serpieri. It referred to land reclamation as '*the coordinated implementation of the works and activities aimed at adapting the land and waters for higher productivity and rural cohabitation*' (Serpieri, 1937, p. 163). In the Serpieri's plans, land reclamation did not consist solely of territorial improvement, a conquest of new lands, but also their taking for the purposes of settlement.
The project entailed a new network of infrastructures, roads, canals, water lifting plants and a number of rural towns and major urban centres. The transformed countryside was to be develop thus, followed by the construction of new centres,

whose role would have been to become the driving force and the administrative cores of the region – new settlements as alternatives to large urban concentrations.

The people who went to reclaim and occupy these lands came from the regions most affected militarily and economically by the World War I and the subsequent structural crisis of the twenties. They were mostly survivors, war veterans, dispossessed from the regions of Romagna, Veneto and Friuli, moving from the north of the country towards the south and the islands,[1] with the task of creating new regions, draining the lands and building new towns.

Even though the land reclamation project extended through the whole country, the greatest attention was given to central Italy and, more specifically, the area around the capital, the Pontine Marshes. This was the millennial site of the Italian malaria[2]. Its fame seemed to be linked to the perpetual inviolability and impossibility of all attempts to reclaim it. In fact, known since the Roman times, the Marshes have survived till the 20th century without any major changes, although over the centuries they have seen numerous, yet futile, attempts at intervention and recultivation. But this time, the territory transformation project was extraordinarily radical and propagated by the regime. The settlement efforts aroused great international interest and, beyond their propaganda context, should be regarded historically as the first true experience of Italian regional planning, not only for the extent of the areas covered, but also for the determination of the project, and not least for the speed of its execution.

The remediation project of the totalitarian regime has brought about the transformations that were also "totalitarian" in their nature, and the landscape of the Marshes has been significantly altered. The watery oasis, these marshy areas were to be substituted by a linear, tidy, repetitive and rather monotonous landscape, marked by lines of channels and divided into orthogonal sectors. In

[1] This wave of internal migration moved in the opposite direction to the one twenty years after, in the post-WWII period directed from south to north. This was a new wave of migrants from different provinces, moving through Italy "repopulating" it. The newcomers were taking up the most difficult and humble occupations. Thus, a new phase was put into motion.

[2] Some of the suggestions regarding the Marshes and the malaria derived from literature. Among the many texts, one especially remembers the famous novel by H. James *Daisy Miller*, the short story by E. Wharton *Roman Fever,* and the parts of G. Piovene's *Travels in Italy*.

this man-made scenery, the waterways, high grounds, coast lines, field arrangements became '*favourable topo-geographic support points*' (Febvre, 1922) for the formation of new human settlements. Here were dotted the settlement and production units, i.e. farms and their farmhouses. Each number of farms had their dedicated village, each number of villages – a town, and the architecture was given the task of representing the conquest and subduing of this land.

Along with the Pontine Marshes, other regions of Italy were also involved in the ambitious plans for the transformation of the territory, a constant remodelling of the natural and agricultural landscape, and the design of new townships. While between 1932 and 1938 in the Pontine Marshes were hastily designed and built the towns of Sabaudia, Littoria, Aprilia, Pomezia and Pontinia,[3] even Sardinia, in the period from 1928 to 1940, got affected by the strong territorial transformation program, bringing along quite a few socio-economic changes in the region. In the Terralba Plain, a semi-desert and marshy area that overlooks the Gulf of Oristano, the Sardinian Reclamation Company began the construction of Mussolinia, (today Arborea) inaugurated in a solemn official ceremony by the Kind himself, in October 28, 1928. A new landscape was designed and built by transforming this territory into perfect experimentation grounds that allowed starting several development processes that have already been underway for some time. The protagonists of the project were to be: Gustavo Pulitzer Finali from Trieste, a Central European architect, together with Caesar Valle and

[3] For further study on the foundation of towns at the Pontine Plains, see R. Mariani, *Fascism and New Towns*, Feltrinelli, Milan 1976.
For more on Sabaudia and more generally on the newly founded towns, see also texts published in magazines at the time of their foundation.
Piccinato disseminated the works in 1938-1939 through number of conferences on the subject in Switzerland. In any case, shown below are some major texts. We would like to remind that the project immediately received large coverage in the magazines of the time. For this, see:
G. Pensabene, *Sabaudia*, in "La Casa bella" 10, 1933; M. Piacentini, *Sabaudia* in "Architettura", 6, 1934; L. Piccinato *Il significato urbanistico di Sabaudia (The urbanistic significance of Sabaudia)*, in "Urbanistica", 1, January-February 1934; M. Piacentini, *Nuovi edifici a Sabaudia , architetto Angelo Vicario (New buildings in Sabaudia, architect Angelo Vicario)*, in "Architettura", April 1935; M. Piacentini, *Edifici a Sabaudia, architetto Oriolo Frezzotti (Buildings in Sabaudia, architect Oriolo Frezzotti)*, In "Architettura", May 1935; P. Vague, *Sabaudia* in "L'Architecture d'Aujourd'hui", 7, 1934, pp. 16-30; C. Chiodi, *La città moderna (The modern city)*, Hoepli, Milan 1935; S. Camillacci, *Sabaudia, la secondogenita nell'Agro redento (Sabaudia, the second child of the redeemed marshes)*, in "La conquista della Terra", April 2, 1936, pg. 4; T. Sharp, *Town Planning,* London, Penguin Books, 1940; A. Pica, *Il gruppo 7 e la polemica razionalista (Il Gruppo 7 and the rationalist polemics* , in the "Quaderni della casa", 6, 1958.

Ignazio Guidi of Rome, who were working on the project for the town of Carbonia. Arturo Miraglia and the "2PTST" Goup, that is, Petrucci, Paolini, Silenzi and Tufaroli, the former one for architectural experimentation and latter as the authors of the final project for the town of Fertilia. The young Eugenio Montuori and Saverio Muratori, creators of the enlargement of Carbonia and the workers' village of Cortoghiana, and finally Giuseppe Pagano, with his extension plan for Portoscuso. The remediation and intervention works entailed the founding of these settlements in the areas previously with little or almost no population, the desolated parts of the region. Along with Mussolinia were constructed Fertile in Nura and Carbonia in Sulcis.

Albeit growing from different plans, objectives and economic situations, these projects were all headed in the same direction: repopulation of the region through a conquest of the land, bringing with it a direct consequence of economic growth.

Mussolinia (fig. 1), the first of the new towns, was based on a strict geometric design of waterways, roads and division of farming estates. This rigorous layout is complemented by a rich and varied architectural language. Compared to other new towns, dominated by the rationalist rigour setting up a dialogue between the strict geometric design of land division and the layout of their streets, here, side by side, we see the eclecticism of public buildings by Carlo Avanzini that frame the main square, and the functionalism of Idrovora di Sassu (Sassu Dewatering Pump) (fig. 2) by Flavio Scano, as well as the rationalism of the Casa Balilla and Casa del Fascio by Giovanni Battista Ceas. Mussolinia was very aptly described by Vittorini (who visited Mussolinia in 1932) as a "cardboard city" whose architectures are fantasy objects, models from other places, distant and alien to both the traditional context of Sardinia and the rigid geometric lines of the reclamation projects.

Figure 1. Sardinia, Arborea (Mussolinia), Cristo Redentero Church.

Figure 2. Sardinia, Arborea (Mussolinia), Dewatering Pump of Sassu.

For the town of Carbonia, the plan provided an idea of a city alternative to a contemporary metropolis, a balanced urban dimension capable of achieving a kind of polycentric city, with three different urban centres: Carbonia, Bacu Abis

and Cortoghiana, in 1940 also added with Portoscuso. However, this plan was never put in action.

In contrast to the Pontine Marshes projects, Carbonia[4] was designed and built to be a town of coal miners, in fact a factory town, aimed at servicing the production, built at the mouth of the mine and not particularly bound to the countryside and the surrounding area. Without any competition, the realisation of this plan was entrusted to an engineer Caesare Valle and an architect Ignazio Guidi, who were soon joined by Gustavo Pulitzer Finali of Trieste. The latter was formerly in charge of the "twin" town of Arsia and became the final speaker of the project and the designer of some of the town's principal buildings.

Cortoghiana[5] (fig. 3) was a product of a political and economic program initiated on the national autarchic level, and developed at the local level with the foundation of Carbonia. Designed to be a workers' village at the service of the northern part of the Sulcis mining area, it was designed by Saverio Muratori to accommodate a population of 5,000 inhabitants. Its layout was largely based on the competition project for the town of Aprilia in the Pontine Marshes, designed by Fariello, Quaroni and Tedeschi in 1933.

The main aspect of this project was a strong and rigid geometry of the constructions drawn on an orthogonal grid oriented to the cardinal points, and one immediately marvels at its utterly urban dimension. A large avenue connects two squares opposite the "gates" of the city: one in the east, with the workers' hotel, and the other in the west, representing the centre of the town's social life, with public and religious buildings. Here, the endless and dominant arcade structures (porticos), with shops in the ground floor and apartments rising on several floors above, offer unexpected perspectives into the surrounding countryside and towards the square, and become the ordering element of large groups of residential buildings.

Meanwhile, the territory of Tavoliere delle Puglie also witnesses an agricultural restructuring plan that proposes land fragmentation of large farming estates and

[4] Similarly to Carbonia and Arsia (coal mining towns), in the same years was being built the towns of Guidonia (aeronautics research town) and Torviscosa (cellulose production town).

[5] To read more on Cortoghiana: G. Cataldi (eds), *Saverio Muratori architetto (1910-1973) (Saverio Muratori, The Architect (1910-1973)). Il pensiero e l'opera (The Thought and the Work)* Alinea, Florence 1984; L. Marcucci, *Regesto dell'opera di Saverio Muratori (Summary of the Works of Saverio Muratori)*, Storia Architettura, 1-2, VII, 1984, pp. 95-208.

the construction of new rural towns, villages and agro-cities, such as Segezia, Borgo Incoronata and Borgo la Serpe (fig. 4).

Figure 3. Sardinia, Cortoghiana, view of the buildings on the square.

Figure 4. Tavoliere delle Puglie, Borgo la Serpe (Mezzanone) view of the square with the Church.

Figure 5. Tavoliere delle Puglie, Segezia, view of the square with the Church.

The reclamation plan promised a significant reduction of unemployment in these areas through new forms of land interventions, such as construction of residential townships and service centres. According to this plan, the villages would have supplied large numbers of workers to the local farms. The Consortium's first attempt at colonisation was the village of La Serpe, near Mezzanone, on the Foggia-Trinitapoli road (D'Antone, 1990). Later, were implemented three other large land division areas, placed as a semi-crown around Foggia: Daunilia in the north; Incoronata to the south-east, with a rural township of Masseria Nuova; and Segezia to the south-west, with the villages of Stazione Cervaro and Stazione di Troia-Giardinetto. Segezia (fig. 5) was designed (1939-42) by Concezio Petrucci, using the form of a Greek cross, with a large rectangular square in the centre accommodating the official buildings (the City Hall, the church, government offices, etc.), and other buildings laid out on the orthogonal grid. In the part of the grand square and its buildings, this plan was only partially realised. The project of the Incoronata village was entrusted to Giorgio Calza Bini (1939). Its system, again, was structured around a central square on which stands, rather isolated, the Village Hall. In the late 1939, Dagoberto Ortensi finally designed the plan for Daunilia, whose centre

consisted of a system of open squares along the Foggia-Manfredonia connecting line, with the most representative buildings on each side.
Of these planned settlements, only Segezia, Incoronata, Giardinetto di Troia and Cervaro have been eventually realised.
Located in the strategic positions on the plain and designed with regard to the communication roads, the villages were supposed to become administrative, social and even religious centres of the entire territory. But despite the initial ambitions of the project, it was destined never to achieve the entire scope of the desired result, remaining a mere superficial interference and a land colonisation attempt, especially on the scale of the actual territorial dimensions of the Tavoliere Plains. In the end, these efforts turned out to be insufficient to resolve substantially the economic and social problems of the Capitanata.

The cities, towns and villages covered here are but a few of those built throughout Italy in this historical period. They number, large and small, more than one hundred and fifty, scattered throughout the nation. Today, some of those “new settlements” have become large and busy local centres, almost unrecognisable. While others were destined to turn into desolate places, even ghost towns. Some have become towns and even cities, others remained as villages deep in the countryside. However, all of them share the common history of "new settlements " and "new foundations". These "new foundations" are united by the pronounced geometry of their layouts and shapes, that were supposed to reflect the hierarchical order that prevailed in the politics, economy and society of the time and thus was also translated into the contemporary urban models. These towns were portrayals of the regional strategy that has created them and represent the "recultivated" and "redeemed" lands that house them. These towns, villages were the urban images and points of reference for the new settlements scattered in the countryside. In this area "built-up" and cultivated by man, an "artificial" homeland where people have ‘*constructed their fileds just as they did their towns’* (Cattaneo, 1846-47, p. 267)[6], we see the architecture that in its traditional and monumental character queries the reasoning of territorial dimensions.

[6] These considerations are borrowed from the text by C. Cattaneo. In this case, Cattaneo refers to the territories of Milan, Pavia and Lodi.

Each of these towns-boroughs had a recognised and shared role in the settlement project, based on the plan to "harness" the recultivated plains by creating a centre or a system of centres in which converges, from which branches out and on which relies a network of streets, roads and canals.

From the beautiful Sabaudia to the smallest Segezia, these town-boroughs became the protagonists of further, more general regional planning, by their very existence promoting the foundation of a series of other settlements, farms, farm houses and villages ordered by the "remote-control" political coordination extending over the territory. This was a comprehensive intervention, able to affect a wide range of sizes and scopes, from a territorial structure to an urban model, for a new lifestyle and for a new man.

These cities relied on the model of a medieval town. From medieval squares they took the formal reference points of the bell tower, the church, the town hall, but not only that. From medieval towns they took the territorial dimension of architecture, the spatial dimension that in the political and institutional context of medieval society was conceived as a distinctive element of power and endowed architecture with extraordinary significant power.

The events and situations in the three geographical areas: the Pontine Marshes and the Plains of Puglia and Sardinia, briefly analysed here, despite their inevitable differences share in common an attempt to consider the territory as a resource for further development. The efforts to reclaim the lands and to repopulate the plains that mark these various Italian experiences are based on the rejection of the concept of metropolis, '*with its weight of physical and moral evils brought about by lack of space, air, sun, with its general misery imposed by the imbalance of values, with its false economy, illogical and unnatural'*, as Piccinato wrote in 1934, in "Urbanistica" (Urban Planning) (Piccinato, 1934, p. 3). Instead, they were guided by a desire to '*overturn the way cities function, doing so by means of urban decentralisation that interprets the use of techniques and models able to balance the urban reality, and to erase the city /country relationship*' (Cefaly, 1984, p. 18).

Now, perhaps, the case studies analysed here may help us outline a way of development and urbanisation that is alternative to what we see today; to imagine a different relationship between the city and the country.

Today, the prevailing trend is a progressive devastation of land through urban development: in the centre are the cities on the Italian plains, along with their undefined surroundings of widespread urbanisation and relocated production, the surrounding landscape constantly subjected to the uncontrolled waves of new construction, construction for the sake of construction, exclusively profit- and rent-driven. Whereas in the outskirts, in the hilly or mountainous areas, we see little but gradual abandonment of settlements and their inevitable decay and collapse.

The new towns continue to grow at the expense of productive agricultural areas, while in the times past the criteria for the choice of construction lands depended on quite different reasoning: protection, water supply, health, and so on. And even the mountain areas used to be put to use, as far as the inherent limitations of these territories permitted[7].

We must promote an alternative way of development (Canesi, 2012), launching on our territory a radical reversal of the viral settling of today, forming dedicated metropolitan areas, where the inhabitants of each territory, be it the plains, the hills or the mountains, can have a usable city, or may rely on rewarding work activities, adequate services and attractive leisure opportunities, with movements and activities of the urban type (max. 60 minutes long).

We believe that in the current situation of economic crisis the government could promote a new measure of "integral reclamation", that we see as complete control of the humanised landscape, ensuring safety of the territory and recovering the habitations that are abandoned or subject to seismic risks, while also implementing large-scale infrastructural, profitability and accessibility projects. However, as is well known, these interventions (hydro-geological reorganisation, recovery of uncultivated land – mostly hills and mountains – management of seismic risk, major infrastructure projects, etc.) by their nature require considerable investments and, in addition, do not carry any concomitant profit, apart from for a brief list of sectors, and at that only in the long term. That's why we consider it necessary to create an alternative market that will be

[7] Every year, Italy looses 500 km2 of natural, rural or agricultural land in favour of new buildings, new infrastructure and similar. The data of the last ISTAT census on agriculture show that in ten years we have lost 300 thousand hectares of usable agricultural land.

able to provide financing for projects design and realisation, in part through a more productive use of the unproductive social spending, partially with a deferred compensation for work (social securities) and with private capital (low-cost banks loans, European funds, etc.), and in part from the tax payments auto-generated by these very new projects. This is essential to secure the areas at risk and to facilitate the economic and social recovery. A similar funding mechanism also would have an immediate and effective on mass unemployment that the global recession has thrust upon us, while also giving the essential momentum to a qualified revitalisation of productive structure.

The government could promote alternative market, starting from some pilot areas.

It is important that this work is carried out on the basis of comprehensive projects that consider the safety measures and the environmental issues in close relation with the structural aspects, income and affordability, in the light of the growing imbalance (conflict) between the cities and the countryside, the industry and the agriculture, the Italian plains and its mountains.

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THE *PIAZZA* AS THE CORE OF THE ITALIAN RURAL SETTLEMENTS IN COLONIAL LIBYA: A THEATRE FOR FASCIST POWER, THE OBVIOUS ANSWER TO LOCAL TOWN PLANNING REQUIREMENTS, OR JUST A PLACE TO MEET?

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Abstract

The paper aims at analysing the newly-founded Italian settlements in colonial Libya, proposing a critical interpretation of their urban planning and the related architectural solutions adopted. First, the settlements will be considered as the basic element for the physical organisation of the territory, and secondly, as places for the social identification of the Italian rural community newly settled in the colony. The role of the piazza*, the central space of every new settlement, will be studied: was it really the theatre where Fascism staged its power, as the material expression of the political control over the territory? Through oral history methods, the first collected narratives will be related to the architecture and town planning of the settlement, to point out the multi-layered functions of the square.*

Keywords: Fascist architecture, colonialism, Libya, rural settlements.

Why did the *piazza*, that particularly defined urban space, serve as the main planning device in the newly-founded Italian colonial settlements in Libya? What was its practical and symbolic function? And what about the settlers: were they influenced by the architectural propaganda? Was the square really used by the inhabitants in the way the fascist regime planned it?

Scholarly research focussing on the architecture in the Italian colonies, in particular Libya, have predominantly dealt with questions related to the dependence or independence of colonial architecture from the contemporary theoretical debate about modernity and its relation to fascism in Italy (Fuller,

McLaren). In other publications, the built projects in the colonies are presented in form of a catalogue, important as reference work because of the large amount of new data presented, but often not offering further analysis (Gresleri, Massaretti). My own research on the new rural settlements in Libya started with my doctoral research in 2004. For the first time, through archival research and field survey, the projects as-built were compared with the designs on paper. The studies allowed to identify differences in the execution, as adaptation to the conditions on the ground, and added information on the forms of the settlements and style of the architecture of what really exists. Still, even after field- and archival research has been done, very little is known about how the new settlements were really working at that time[1]. Nothing is known about how the inhabitants responded to the created spaces and how they made use of them.

The essay proposes some of the results achieved by the analysis of the town planning and architecture of the newly-founded settlements and aims at exploring the methods adopted by the Italian Government in the Libyan colony for the mass colonisation of the territory. The role of the *piazza*, considered the core element of colonial urban design, will be investigated in detail, pointing out its urban and metaphorical role. This research also attempts to look behind the propaganda, questioning for the first time the image that fascism translated into the towns in Libya. By using oral history methods with the original inhabitants of the new settlements, I will explore, compare, and analyse the actual urban relations, daily use of space and domestic routines in the settlements during fascist rule. The memories and narratives of the settlers will be commented on and re-connected to the architecture in order to investigate the relationships between the architecture and its users. The aim is to shed new light on the function of the *piazza*, the core of every rural settlement, first in discussing its role as the theatre of fascist propaganda, then looking beyond the image the regime was imposing, making an attempt to explain the actual use people made

[1] A major problem is the access to the Libyan archives, and often research – including mine – is based mainly on the Italian perspective, omitting the Libyan counterpart. The works of Francesca Di Pasquale and Francois Dumasy with their extensive use of Libyan sources are exceptions, but do not deal with the town planning and architecture of the rural settlements.

of this space[2].

Italian colonial urban interventions in Libya can be divided in three groups. First are the urban developments of the already existing capitals, Tripoli and Benghazi, where Italian city planning mainly focused on the reorganisation of the existing city for their new administrative role and in anticipation of urban growth. Second are the extensions planned for minor cities, such as Derna and Homs, which despite being less important on a political level remained fundamental for the colonial regime as a means of showcasing its power. The third group of interventions comprises the newly-founded rural settlements built along the coasts of Tripolitania and Cyrenaica, unique not only in the scale and dimensions of the urban works, but especially because of their purpose.

These rural settlements were built *ex novo* in Tripolitania and Cyrenaica starting from 1934 to receive rural Italian families transferred from Italy for the agrarian colonisation of the land[3]. They offer extraordinary insight into the urban solutions adopted by the Italian Government in Libya, and accordingly a better understanding of the fascist idea of colonisation. In the timeframe of 6 years (and if we leave out the first 4 attempts in 1934, the bigger part of the settlements was built only in two years between 1938 and 1939), 28 new settlements were planned and built, with completely different forms, but with the same purpose. The engineers and architects involved were asked to design the settlements on land considered empty,[4] with the resultant absence of design constraints engendering a complete creative freedom – one of the most original elements of the Libyan interventions. A critical study of the urban forms and architectural *leitmotivs* can offer many clues to better understand the main devices used by the fascist regime to create a familiar setting for the Italian settlers, and on the other hand, to occupy, administrate and transform the space.

[2] My research into the oral history of the Italian settlements is still in a very early stage. I will present here the very first few preliminary ideas of this newly started research, which undoubtedly require further development and in depth examination.
[3] The first settlement built in Libya was Tigrinna, Tripolitania, in 1931. See the following paragraph in the text.
[4] The pastoral use of the land, as well as any other temporal use by the local population, was completely ignored by the Italians.

The Italian rural colonisation of Libya started in 1934, with the founding of 4 new settlements on the coasts of Cyrenaica (Beda Littoria, Luigi di Savoia, Berta, Razza) under the administration of the *Ente di Colonizzazione della Cirenaica* (ECC). The ECC, established in 1932 and financed by several national institutions, worked as an intermediary body between the State and the settlers, buying state-owned land to invest in the "agrarian valorisation" with Italian families. The families, meanwhile, were obliged to pay back in one generation the initial funds and goods received (costs of the plot, house, tools etc.), to finally become full owners. Starting in 1935 in Tripolitania, the INFPS (*Istituto Nazionale Fascista per la Previdenza Sociale*), an institution with the same aims and organisation as the ECC, began colonisation with a new settlement dedicated to Michele Bianchi[5].

The programme of mass migration was launched in 1938 by Italo Balbo, governor of reunified Libya since 1934, and anticipated the transfer of 100,000 Italians in 5 yearly migrations of 20,000 people. In November 1938, the first 20,000 rural settlers arrived in Tripoli, followed by 11,000 in 1939, while the planned third transfer in 1940 was never realised due to the outbreak of the Second World War. The main difference with the first colonisation carried out by the ECC and INFPS in 1934 was that the programme of mass migration in 1938 and 1939 was financed exclusively by the State. The INFPS and the *Ente di Colonizzazione della Libia* (ECL), renamed after having expanded into Tripolitania[6], were in charge of the organisation of the colonisation and became the executors of a specific State mandate, the final aim of which was to create small, rural and family-based autonomous enterprises. For the first few years, the State provided the families with all the necessities, and the families were obliged to repay all the costs with minimal interest over the following years, until

[5] The land was given to both institutions in the same way, following the laws of 1928: the Libyan Government gave the land at a very low renting cost. The institutions had to divide the plots, build the houses and distribute them to the families, ensuring the financial support, direction and technical assistance to start the agrarian production.

[6] RD law 11 October 1934, n.2038, "Estensione alla Tripolitania dell'Attività dell'Ente per la Colonizzazione della Cirenaica". RD 26 September 1935, n.2283, "Sostituzione della denominazione dell'Ente per la Colonizzazione della Tripolitania e della Cirenaica in Ente per la Colonizzazione della Libia".

becoming, in the timeframe of one generation, the proprietary of the plot and the house[7].

For the first and second transfer of Italian families, 17 of the planned 19 rural settlements were built: 10 in Tripolitania and 7 in Cyrenaica; as were 6 of the 8 planned settlements for the Libyan families: 2 in Tripolitania and 4 in Cyrenaica[8]. The first mass migration to Tripolitania in 1938 saw the founding of the settlements Oliveti, Giordani, Breviglieri, Crispi, Gioda and the *borghi* Micca, Corradini, Tazzoli, Marconi. The Garibaldi settlement was built for the migration in 1939. In Cyrenaica, the mass migration in 1938 witnessed the establishment of settlements Baracca, Maddalena, Oberdan, D'Annunzio and Battisti, followed by Mameli and the *borgo* Filzi in 1939. Borgo Sauro and Torelli were designed and planned for the third mass migration in 1940, but were never implemented[9]. For the Libyan families, settlements implemented in Tripolitania included Balbo and Naima-Deliziosa (Delicious); and Gedida-Nuova (New), Nahida-Risorta (Reborn), Zahra-Fiorita (Blossomed) and el-Fager-Alba (Sunrise) in Cyrenaica[10]. The *borghi* were smaller settlements, not planned to host all the services, such as the Casa del Fascio (Local Headquarters of the Fascist Party), the municipality building or the cinema, and the families had to refer to the closest bigger settlement[11].

[7] See the decree of the 17th of May 1938 (n.701) "Measures for an intensive mass colonisation in Libya": the Government of Libya used State funds to realise the settlements and their infrastructures, such as street, aqueducts, wells, telephone and telegraph lines. The ECL and INFPS were in charge of dividing the land (in concession for free) into plots and coaching the families, as an intermediate level between the State and the families, by administrating State funds. Moreover, the families had a support of 30% on the cost of the plot (including the house, the land and borrowed money).

[8] For more information about the internal colonisation for the Libyan families, see Capresi 2009. See also the Article 1 of the RDL 13 February 1939 n. 284. The settlements Chadra-Verde (Green) and Mansura-Vittoriosa (Victorious) were never implemented, fact confirmed by a site survey in 2009. See also the report of ECL, *Conto consuntivo dell'esercizio 1940*.

[9] A direct visit to the area where Sauro should have been built confirmed the fact that it was never implemented. Nevertheless, the area is still called *Sauro* by the Libyans. For the project of Borgo Torelli, signed by Florestano Di Fausto, see Capresi 2009, pp.281-283.

[10] The Italian settlements bore the names of politicians or persons involved in the colonisation, while settlements for the Libyans were named after natural elements, so as to mark their new state of settlement. See *Rassegna delle colonie*, 6 June 1939, p.808.

[11] I leave the Italian word *borgo* to define these entities to differentiate them from the settlements.

For a better understanding of the design of the rural settlements, it is necessary to retrace the process of urbanisation of the land, and to point out those needs the rural settlements sought to answer.

Each new establishment was planned as a self-sufficient system, based on the agrarian use of a determined plot of land by a fixed number of rural families. The process started by defining which areas would be included in the programme of rural colonisation, chosen from lands belonging to the State with an estimated good agrarian potential and well connected by roads. Such areas were called the *comprensorio* (district). Once the border of a district was defined, it was divided into single plots, each of them assigned to a family, and on each plot, for each family, a house was built[12].

The core of each rural settlement was built in the approximate middle of the district, so as to be equally reachable by all the families, and hosted such essential services as school, a church, a shop, a municipal building, and the Casa del Fascio. However, only the teachers, priest and few others actually lived there; the settlers were scattered across the district's lands, with the specific purpose of strengthening their attachment to their assigned plot[13].

The design and implementation of the core of the settlements was in the hands of the Uffici Opere Pubbliche (Public Works Office), while the division into plots and implementation of the rural houses fell under the authority of the institution responsible (ECL or INFPS).

It is worth noting that the cores of the settlements were planned as a fixed system of buildings and functions, as they concluded the process of urbanisation. The number of the plots was in fact planned since the very beginning, in line with the dimension and productivity of the land, and as a consequence, so, too, was the number of families to install on the plots. As such,

[12] For the first 4 settlements in Cyrenaica the houses were occupied by two families, for both security reasons and issues related to the water distribution. From 1938, to strengthen the link between the family and the plot, the houses were isolated on the plot of land. In the plan of Beda it is possible to recognise the different houses for the families arrived in 1934 and for the mass migration. See ECL 1940, tav.XV.

[13] The *comprensorio*, district, with a core of administrative buildings, was called *centro rurale*, settlement. I will indicate with "core of the settlement" and "core of the *borghi"* these administrative buildings gathered on a square.

the system was completely unalterable: the borders of a district were fixed, as were those of its neighbours, rendering it impossible to enlarge the initial boundaries, and an increase in the number of families would have brought the system to collapse due to lack of resources. In sum, the districts were an inflexible mechanism by which the agrarian production was planned to answer precisely the needs of the settled families. The founding of new settlements was not aimed at creating new towns as a living and permanently evolving organism, but at realising perfectly stable units, based on self-support, in line with the autarchic propaganda of the regime.

Figure 1. The core of the rural settlement and the houses for the settlers (Gioda, Tripolitania). Each house was on the assigned plot to cultivate. *Libia*, n.1, January 1942, p.21.

The new settlements´ cores were dimensioned on the number of colonial families, and planned on a free, geometrically regular plot in the middle of the district. Usually there were no architectural or landscape elements to be

integrated in the design[14], so that from a comparison between the forms of the cores of the settlements, the recurrent elements which emerge can be read as the functional solution adopted by the regime to respond to needs of the settlers, and as the symbolic representation of the fascist power in the colony.

The main archetype used for the design was the **piazza**, considered as an empty space enclosed by buildings. It had various forms, such as squared and closed on four sides, closed only on three sides, composed by two attached spaces, or open like a U or omega on the street. The main idea was to enclose a plot of space by a perimeter of buildings; separating the interior, familiar, and secure centre, from the outside, immense and unknown, and so offering the settlers a place to meet and gather with all the symbolic implication of safety and confidence.

The design was also influenced by the position of the settlement in **relation to the main street**, the *Litoranea libica*, the road inaugurated in 1937 by Mussolini and Balbo, which connected Egypt with Tunisia along the coasts of Libya[15]. Communication was a major issue for the location of the districts, and the proximity to the main coastal road or other major street was vital for the existence of the settlements. The presence of the coastal road was actively used in the design, so that in many cases the square is open with one side towards this road, and in general the buildings turn their main facades to the entrance from the street[16].

Another formal feature common to all the cores of the settlements was the common orientation of the **facades**. As discussed, the square is the generator of urban planning, and all the buildings which enclose it have their main fronts and entrances turned towards its centre. The use of the space also highlights the key role of this urban void: all the buildings are accessible only from the square and they seem to turn their back to the unimportant outside. The biggest part of the

[14] Only in very few cases the landscape is involved in the design (in Cyrenaica and on the south of Tripoli – Tigrinna for example), or in the case of the Roman mill integrated in the plan of Breviglieri.
[15] See the Monography *La strada litoranea della Libia,* 1937.
[16] The settlements Maddalena, Oliveti, Giordani, Breviglieri, Gioda, Micca, Corradini, Baracca, Battisti, D'Annunzio have the square open towards the street. For an analysis of the forms of the square see Capresi 2009.

settlements´cores has in fact a main front, facing the square, which was also portrayed in the press of that time.

The fact that all the main facades are directly facing the square generates a direct communication between the buildings. The **hierarchies** are openly apparent through these facades, from which can be inferred the buildings' levels of importance and so the hierarchies between the functions. The buildings that host a religious or political function are clearly the most important; the greater height, the more elaborate design, and the presence of religious or political symbols make them immediately visible and recognisable. In all the cores of the settlements the leading buildings are the church and the Casa del Fascio, where often are hosted also the municipality offices[17]. The Casa del Fascio is always characterised by a balcony (*arengario*), a tower and the symbol of fascism[18]. In the settlements directly facing the street of access, the Casa del Fascio, with the symbols of fascism, is turned towards the street, symbolically addressing a hypothetical public passing-by[19]. Nevertheless, in analysing the urban planning, the church emerges as the most hierarchically important building, because of its position – axial and always quite visible by entering the square – size and distinctive design[20].

By abstracting these architectural and town planning solutions, it is possible to identify the needs the rural settlements sought to answer. These needs could be divided in two main categories: on the one hand, there were the very practical necessities of the colonial families related to the everyday life, while on the other, there were the symbolic functions related both to the fascist propaganda and to the necessity of giving the Italian settlers the feeling of a new home in Libya. As seen, the piazza is the core of every settlement. The buildings which

[17] Michele Bianchi is the only settlement with the three institutions hosted in three different buildings: the Casa del Fascio, municipality building, and church. This fact is probably due to the bigger number of settlers referring to Bianchi.
[18] The design of the Casa del Fascio is much more complex as briefly summarised here, and a closer analysis will go over the frame of this contribution. See for example the buildings designed by Mario Romano for the first settlements in Cyrenaica, which are unconventional experiments if compared with the more canonical buildings of Oberdan, Giordani, Breviglieri and Gioda. See Capresi "Mario Romano and Alfredo Longarini, little-known planners of several newly-founded towns in Libya", in *The Presence of Italian Architects in Mediterranean Countries*, 2007, pp.66-77.
[19] D'Annunzio, Maddalena, Baracca and Battisti.
[20] See Glauco Gresleri in: Culotta, Gi. Gresleri, Gl. Gresleri (ed) 2007, pp. 44-55, and Capresi 2009, pp.71-81.

enclosed it hosted the necessary functions for the settlers, such as the church, the municipal building for civic functions, the market, the shop, and the offices of the ECL or INFPS to advise on matters of cultivation. But the square was more than just a crossing point between functional buildings; looking at its symbolic function, it was a place to gather as a community, to feel to be part of a town, reinforcing the feeling of belonging. With the emptiness of the square, the architects envisioned it as a space for the common activities of the settlers, giving them a new identity in the new unknown land. It is for this reason that the church, rather than the Casa del Fascio, took on the dominant position in the square; the settlers needed to be reassured and to feel protected by the building that most represented their cultural and deep religious identity. At the same time, however, as the square was the only major gathering place in town, it was also the place where the regime could address the mass of settlers and display its power. The tower, symbols, and balcony of the *Casa del Fascio* were thus situated overlooking the space and psychologically engaging with the settlers.

Figure 2. The church of Gioda, Tripolitania. Umberto di Segni was the architect of the settlement, built for the first mass migration in 1938. Picture by the author, 2009.

But how present was fascism in the square, besides the architecture?

The pictures published by the magazines and press of that time largely show the squares as empty spaces, likely having been taken before the arrival of the settlers. Still, this emptiness, the portrayed "pure" architecture, was able to powerfully publicise what the regime had done. In the pictures of that time, the piazza became a sort of symbol of the ability, efficiency, and "modernity" of fascism, advertising in the motherland and abroad the success of the colonisation in Libya.

Beyond the physical appearance of the squares' architecture and the associated ideological discourse promoted by the regime, I would like to introduce here the very first steps of a research based on interviews, to explore the daily use by the inhabitants and their response to the architecture and urban planning. This test-attempt investigates, behind the propaganda images and architectural appearances, how the built spaces, and in particular the square, were used by the people at that time. These accounts provided in oral history interviews are undoubtedly subjective, partial, partly nostalgic, partly traumatic, and in some cases informed by political orientations and echoes of political propaganda associated with the settlements. However, they offer an invaluable opportunity to provide crucial counter-narratives to the official discourse to enrich and complicate our understanding of these settlements.

The first sample of interviewees spent their childhood in the settlements of Tigrinna, Giordani and Bianchi (Tripolitania)[21]. Tigrinna was established in 1931 by the Azienda Tabacchi Italiani (Italian Tobacco Company) and included 500 families, each on a plot of 2 hectares, mainly dedicated to the cultivation of tobacco, regularly bought by the company. In the square there was a church, a school, the office of the company, a clinic and houses for the teachers. The main idea of the colonisation and the town's overall design were very similar to the

[21] It is necessary here to remember that the settlements for the mass migration were built in 1938 and 1939 and the families were transferred in 1938 and 1939, spending maximum one and half year in the settlements before the beginning of the War and the end of fascism. This is a very short time, also because at the beginning of their Libyan life, the families had to mainly focus on the agrarian exploitation of the land. Nevertheless, the data can show a general tendency in the relation between everyday life and politics.

mass colonisation in 1938 and 1939, with the most notable difference being the exclusively tobacco based farming and the dimensions of the land-plot, only 2 hectares, compared with an average of 25 hectares of the plots assigned in the colonisation of 1934 and 1938-39[22].

Giordani was a *borgo*, in which the municipal building and Casa del Fascio were missing, for which settlers referred to Bianchi, the biggest settlement in Tripolitania.

In the memories of the interviewees, the square was not the place for political meetings. In Tigrinna and Giordani, the *Sabato Fascista*, or fascist Saturday, was the only institutionalised political moment in the week, during which men were required to dress the black shirts and attend military training. Before and after this (in Tigrinna) came a slot of time when settlers were invited to present complaints to the head of the Casa del Fascio. The complaints mainly regarded the obligatory physical and military exercises, which many felt were excessive after a week spent in the fields. Usually the training happened in the athletic field (as was the case in Tigrinna) or in the streets; not necessarily in the square. None of the interviewees could remember any gathering for the visit of any high-ranking political guest. By lunchtime, everybody was back at home. In Tigrinna, likely due to the higher concentration of settlers on a smaller district and the consequent shorter distances, after lunch men could spend some time at the bar playing cards and drinking wine.

Sundays were a different matter. At 11am, the entire settlement attended Catholic Mass in the church (Tigrinna, Giordani, Bianchi). The time before and directly after Mass was used to walk in the square and talk with the other families. In Giordani there were two bars (Locanda Fiesoli and the Ragno d´Oro) with outdoor space. Here people would sit for a coffee or a water ice before going back home for lunch. In Tigrinna the bar was not on the main square, so

[22] One of the settlers in Tigrinna reported: “We had a house, which was on a plot of 2 hectares: but in 2 hectares there was the house, the stall, the plants and it was even impossible to keep animals. Animals eat, it was necessary [to have] more space, and there was no space: we needed the land to cultivate the tobacco. And the more we grew, and got married, we had to stay all in one house. There were no houses to rent like today; where could we go?” See also: Capresi 2009, pp.140-145; Schmieder-Wilhelmy, *Die fascistische Kolonisation in Nordafrica*, Quelle&Meyer, Leipzig 1939, pp.177-179.

that it did not offer a place to stay on Sunday morning. Because of its position on the street in the direction of the seat of the Tobacco Company, the bar offered an unplanned stopover on the way home during the week.

One common thread independently cited among those interviewed, however, was a general shortage of free time to dedicate to such meetings and chats.

If the square was the setting for the informal gathering, the bars were the formal meeting area – to play cards, to listen to the radio, and to converse.

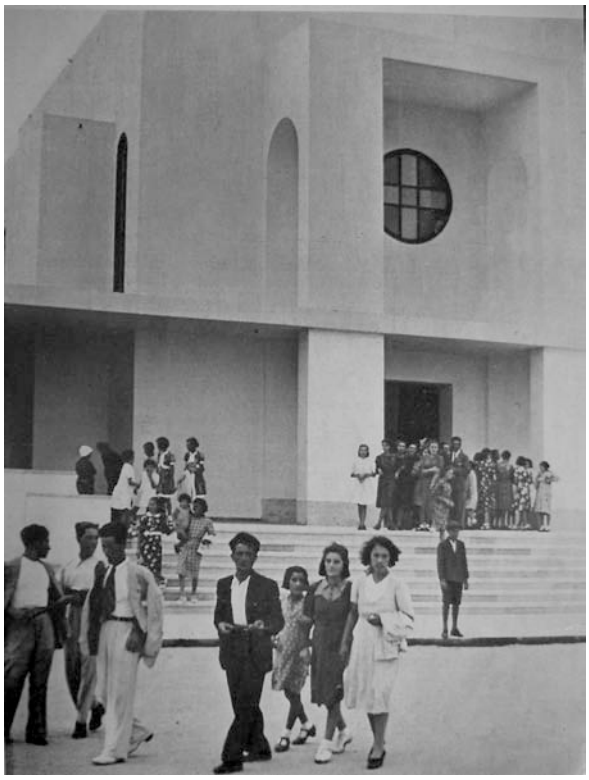

Figure 3. Sunday after the Mass in the settlement Gioda, Tripolitania. *Libia*, October 1939, p.1.

There is no mention of gender segregation regarding the activities at the bar on Sunday morning, but pictures of the time would suggest the contrary.

Tigrinna's bar had a special role during the Second World War. It hosted the only available radio in town, but all of its stations were blocked. After secretly

connecting with Radio Londra (the BBC special programme in Italian), settlers would gather in the bar to listen to the coded-messages.

Concerning other propaganda actions, such as the projection of films or documentaries, information remains unclear and sparse. In Bianchi and Garian (close to Tigrinna), there was a cinema, which played a new film each week, always opened by a LUCE newscast[23]. There is no mention of public projections in the square (this happened only afterwards during the British occupation).

The square was also the setting for a range of religious festivities. Patron saint days were celebrated, with a parade for the saint (Tigrinna), or the celebration of all baptisms and confirmations (Giordani and Bianchi). The interviewees made no mention of bigger holidays with music, but spoke instead of smaller parties at home by those who owned a gramophone. During the year there were two further occasions for celebration: the wine festival and the threshing festival. On the occasion of the wine festival, chariots and carts were decorated and driven around the settlement. Apparently, there was a competition for the most beautifully decorated cart, but this information is unconfirmed. The threshing festival, on the other hand, was a more private affair: after threshing with a machine the plot of one family, all the people involved would have lunch or dinner together at that place.

During the Second World War, however, the situation was completely different. All children under 14 were forcibly transferred to Italy, leaving only women, infants, and the elderly in the settlements. As explained by a former inhabitant of Giordani, there was no need and no time for propaganda.

In general, what emerges from these first collected narratives is that people only visited the core of the settlements during the week if they had urgent needs (purchases at the shop, finalising of documents), as distances were generally too great for frequent visits. Otherwise, the actual use of the square was limited to casual meetings around the time of the religious functions or festivities. The balconies of the Casa del Fascio were not really used for what they were

[23] L´Unione Cinematografica Educativa – LUCE was established in 1924 to show films with didactic purposes. It soon became the main instrument of propaganda for the regime.

planned, and the flag-hoisting was not conceived as a common ceremony. It seems, then, that the fascist elements on the façade of the buildings were speaking less to the settlers themselves and more to everybody else back in Italy and elsewhere, via the many pictures published in all Italian magazines and abroad to publicise the achievements of the fascist colonisation.

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COLONIAL ARCHETYPE AND NATIONAL REBIRTH
Railway stations and 20th century new cities in China

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Abstract

Railway stations played a vital role in the creation and transition of 20th century new cities in China.

The early railways development in China at the beginning of 20th century was promoted by foreign companies; it radically changed the pre-existing territorial hierarchy in the regions concerned, implying the construction of new planned cities, or the addition of new cities siding existing Chinese old cities. In both cases this kind of settlement had all the typical feathers of the company town, indeed railway company town. In this way the Russian CER (Chinese Eastern Railway) built the cities of Harbin and Dalian in the form of "ideal city" of that time, i.e. the garden city, and the Japanese SMR (South Manchuria Railway) added a completely new urban body, the so called "the business city", to the old Manchuria capital of Shenyang. Later the urban archetype of the business city of Shenyang was also adopted in the new Manchukuo capital of Changchun, and in some others Manchurian cities like Fushu and Jiamusi.

In 1920s the Nationalist Government made the Capital Plan of Nanjing, which could be considered as the Chinese version of the plan of Washington, D.C. (L'Enfant) and New Delhi (Lutyens). Indeed the plan reflected Chinese imperial planning and architecture. In this project the three Chinese style Pavilions of the railway station building were positioned at the end of the central axis, in the focal position of the new Administrative District of the capital.

Later in Beijing, during the post colonialism period the communist regime introduced a new urban display in which the railway station, was playing the role of the "gate" of the new monumental axis celebrating with museums and governmental buildings China's new identity. The sample of Chang'an Avenue with the new Beijing Central Station became an archetype replicated in many other provincial capital cities. This idea of integrated urban complex whose focus is the railway station is even used nowadays in some cities with their new stations for the high speed railway.

The cases here listed and illustrated in the following paper show the metamorphosis and the continuity of an urban archetype of Chinese contemporary city with its roots in the colonial and post-colonial past.

Keywords: Railway station in china; Colonial archetype; National rebirth; 20th century new cities in china

1. Railway Station and Colonial Archetype

The German historian Jurgen Osterhammel in his book <*Colonialism: A Theoretical Overview*>discusses the different way in which colonialism expressed his power and influence in colonized territories. One of this is the "informal colonialism" of the railways companies through which the colonial power subjugated colonised countries without the use of military force. China offers in this sense a very rich sample, considering that until the foundation of Peoples Republic of China almost all the railway network (nearly 22.000 km.) was built and controlled by colonial powers: Great Britain, France, Belgium, Germany, Russia, Japan.

Indeed these colonial powers "carved up" China and formed their own territory of influence inside China through the geography of railway network: for instance, Russia and Japan competed for the northeast (Manchuria), France penetrated in China in southwest via Vietnam, Germany controlled Shandong province, British occupied the Yangtze River basin, in order to further consolidate their colonial rule and transport of mineral resources (mainly coal), grain, cotton and other resources. The "treaty ports" of these areas were then connected each other by railways lines constructed through joint ventures among the major colonial powers.

During the Self-Strengthening Movement the reformers of the weak Chinese Qing government advocated to learn advanced Western technology, and continued to propagandize the benefits of constructing railways. Although the conservative Court reluctantly agreed to their suggestions, due to the long war with the Western colonizers and Taiping Rebellion, the weak Qing government was unable to afford enough funds to develop their own railways. Thus, the reformers had to borrow capital from the Westerners, and repaid the loan by the income obtained from railway operating. Therefore, China's early railway network was in fact financially controlled by the Western colonialists.

The vast territory of northeast China was coveted by the close and aggressive neighbours Russia and Japan who quickly constructed new city or district as soon as they got the concessions: Russia obtained the concessions at the

beginning of the XX century, while Japan military occupied the Russian concession after the Japanese-Russian war in 1905. Notwithstanding the different position both Russians and Japanese made massive investment in urban construction, attempting to maintain their occupation for long time. The two important new cities that Russia founded because of the strategic geopolitical position, Harbin and Dalian, took over the form of the ideal city of that time, i.e. the garden City. Japanese colonists in Shenyang, Changchun, Fushun, and Jiamusi, constructed the railway station out of the old Chinese city, and also adopted a common archetype, that is, by using the station as a bridgehead to lead the development of new urban district in opposite position to the Chinese city, thus forming a sort of second city and this forming a “double city”.

Railway Station and Planned City: Russian Archetype

Harbin, the emerging super star, one of the most important financial centres of north-east Asia at the first half of the 20th century, was just a ferry on the Sungari River near to some scattered villages by the end of the 19thcentury.

In 1897 the Russian company CER (Chinese Eastern Railway) started to construct the railway in Harbin, as a junction of the Trans-Manchurian line (“Chita -Vladivostok” shortcut of Trans-Siberian Railway) and the South Manchurian Railway to connect the ice-free port cites of Dalian and Lushun in Bohai gulf.

CER, as later the Japanese SMR, immediately played also the role of "a enterprise of city development" and became indeed the body that administrate the city.

The new city of Harbin was divided by the railways into a series of geographically, functionally and "ethnically" distinct neighbourhoods: “Pristan”, the district between the river port and the central station was set up as railway factories, in front of which were residential area predominantly inhabited by Westerners, with dwelling houses and commercial building, characterized by

dense blocks and buildings of 4-5 floors designed for business people from the international community (Russians, Polish, Jews and Japanese, etc); While Fujiadian, the east part of the railway, was under the administration of the Chinese government and had normal Chinese quarters.

The railway station was positioned in the middle of this puzzle of urban areas ethnically and socially differentiated and in the focal position of the most spectacular district “Novij Gorod” (literally means “New Town”), a garden city crossed by two main axes. In central circular plaza at the intersection of the axes was located the St. Nicholas cathedral that was closing the axis originated by the Station square; on the two axis were located other buildings directly belonging to the CER, as the complex of the headquarter of the Company and the Polytechnic University were designed city plan, buildings, machinery and industrial complex realized by the Company in Manchuria. Commercial buildings, entertainment institutions and commercial centres, quarters constellated with elegant “modern style” villas were playing the role of the cornice of the central axes functionally dominated by the buildings of the Company.

The station building, built in 1904 and designed with the popular “Art Nouveau” style with steel, glass and concrete, was reflecting in his interior partition the same ethnic and social differentiation that the building was affording in relation with the urban districts: the first, second and third class waiting rooms, for foreign passengers, were independent but could be reached through the same concourse, while the one for Chinese passengers was totally separate. Nevertheless, the facade showed an unified architectural language, using fancy curves, solid walls and glamorous wrought iron to create an avant-garde machine-style beauty.

The economic vitality and the elegant buildings made a great reputation of the city. Thanks to the railway, Harbin soon experienced a rapid development and the population exceeded 500,000 in 1934, of which approximately 160,000 came from 33 different countries.

This archetype of new town shaped as a garden city was also adopted in Dalian by Russians at the same time, from the “Art Nouveau” station square extended

the “station street” to the main Orthodox Church - the geographic centre of the city. Another main street, formed intersection of the church and square, linked the sea port on one end, and shopping centre on the other end. After the Russo-Japanese War (1904-05) the CER benefits were transferred to the Japanese SMR and the city expanded westward rapidly. Considering that the construction of the “Art Nouveau” Russian station was interrupted by the war and that the city rapidly growth saturating the space of the Russian masterplan, a new station was built in 1930 in “rationalist forms” some hundreds meters westward in a more barycentric position in relation with the increased dimension of the city, keeping save the concept of the urban layout of the first Russian masterplan.

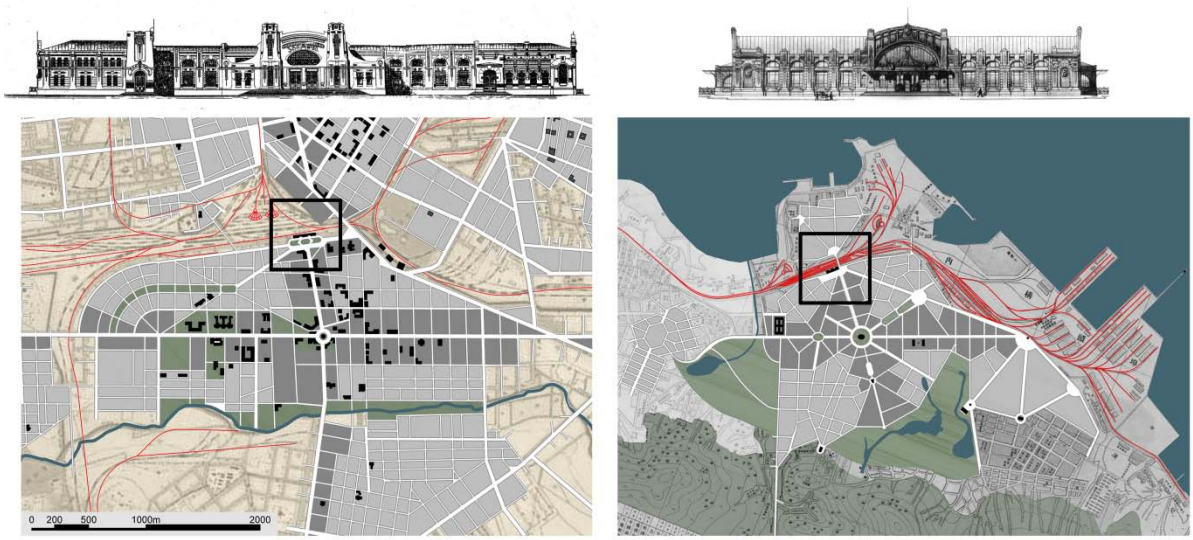

Figure 1. The Harbin station (1904) and Dalian station (project,1899) with the same urban form during the foundation period. (Source of two facades of stations: Wu,G.(2007). *Jianzhu yishu changlang: Zhongdong tielu laojianzhu xunzong* = *Architecture gallery: Tracing the old buildings of the Chinese Eastern Railways*.Harbin: Heilongijang People’s Publishing House.)

Railway Station and Double City: Japanese Archetype

After the Russo-Japanese War the Japanese set up in Shenyang a railway station as a bridgehead to develop a new city opposite to the old Chinese city. From streets to buildings we can easily notice the different urban images between the

two cities. The new city had a distinctive Western urban form which was totally different from the Chinese one (squared shape, later expanded like oval) nearly two kilometres away.

The new city had a rectangular shape, with the longer side parallel to the railway line, divided in regular blocks by a network of orthogonal roads, crossed by three main tridentate avenue originated by the rectangular station square with other two big circus on the diagonal axes. Thus the station became the visual centre of the city. It was designed in 1908 by Japanese architects Yasushi Tatakeshi and Soutarou Yoshida, both of whom were students of Tatsuno Kingo author of Tokyo Central station.

In their Shenyang railways station project they followed the sample of their master in Tokyo introducing in the building shape a symbolic dome, visible from all the avenues of the trident, with circular windows introducing light into the concourse. Tatsuno Kingo received architectural education under British architect Josiah Conder and had a short-term work experience in United Kingdom, such dome and the composition of building expressed the distinctive Baroque style - so called "Queen Anne Revival" which was very popular at the turn of the 20th century, hence this station can be seen in an asian context as an “exotic” European architecture.

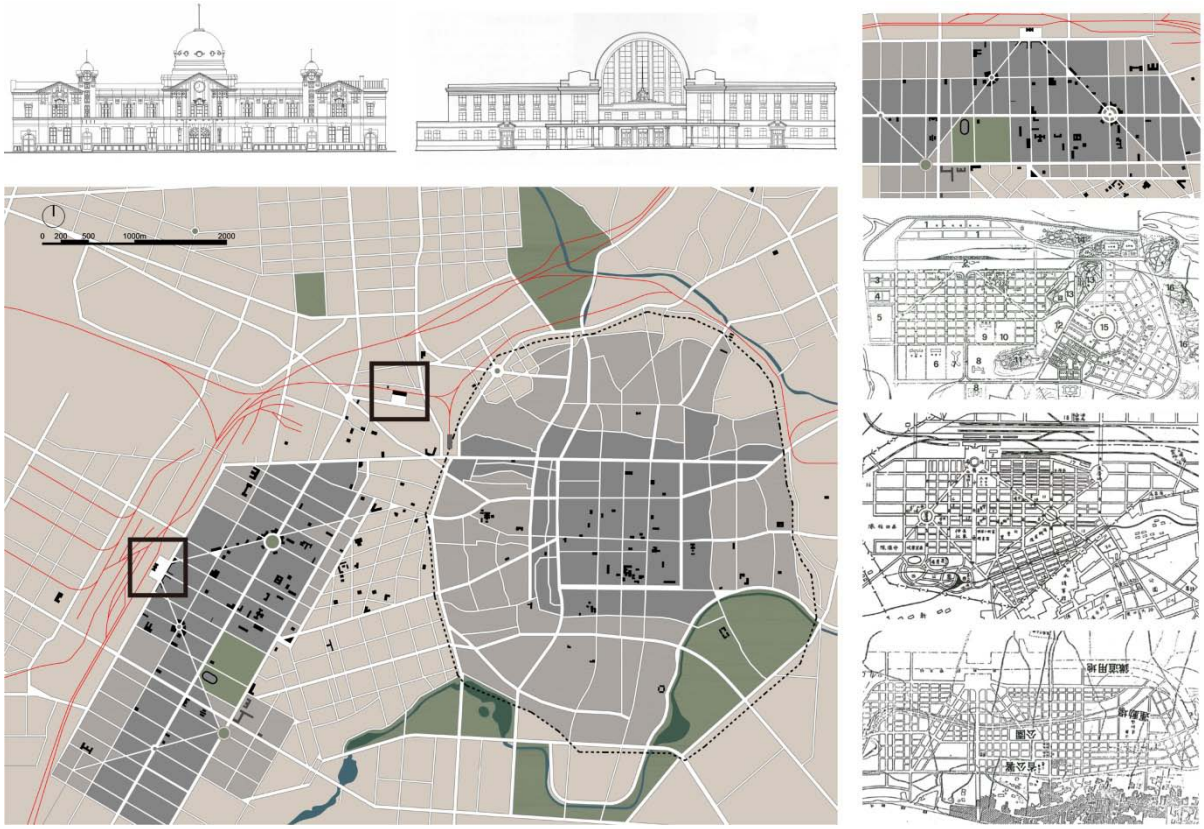

Figure 2. Shenyang Japanese new city and station(1909), and Chinese old city and station (1929), with other three cases of Manchurian cities planned during Japanese occupation – Fushun (1924), Changchun(1932) and Jiamusi (1937). (Source of Facade of station: Chen, B. (2010). *Shenyang dushi zhong de lishi jianzhu huilu = Collection of Historical architecture of Shenyang (ed.)*.Nanjing:Northeast University Press. Source of planning of other three cities: Koshizawa, A. (1982), translated by Huang Shyh-Meng (1986). *History of urban planning in Manchuria*, Taipei: Dajia Publishing House.)

Also the other huge public buildings, like office, hotel, bank, hospital, school, etc., adopted the typology of western architecture since a great number of Japanese architects received Western architectural education and training after the Meiji Restoration.

With the support of the efficient railway transport, the modern industry and commerce developed rapidly. The new coming migrations grew fast (the inhabitants increased from 250,000 in 1894 to 470,000 in 1911) and soon Shenyang became a city with a double core: the Japanese “business city” with the Railway Station at is head, on the west side, and the walled Chinese city with the Manchurian forbidden city in his heart, on the east side. Some year

later, in 1929, the Manchurian warlord Zhang Zuolin commissioned the construction of another railway Station at the east gate of the walled city with a project by the Chinese architect Yang Tingbao (educated in Pennsylvania University) in “Art Deco” style. Yang Tingbao in the same time made several project for public buildings in the same style commissioned by Zhang Zuolin. In this case also, station and public buildings resulted to be linked thanks to the common styling and modern architectural shapes emerging by contrast with the background of the urban landscape of the traditional Chinese architecture of the old Manchuria capital city.

This urban planning archetype of the Japanese business city – using the station as the visual centre of trident to create a new city, was successfully adopted as a model for other Manchurian cities like Changchun, Fushun, Jiamusi and other smaller cities.

2. Railway Station and Adaptive Plan. The Nanjing Experiment

After the long-term Qing dynasty rule and the following social unrest, in 1927 the Nationalist Government set his capital city in Nanjing, the second capital city of Ming dynasty. After the grand funeral ceremony of Pater Patriae Sun Yat-sen and the completion of his Mausoleum in 1929, the American architect Henry Murphy was involved by Sun Ke (son of Sun Yat-sen) for the plan of the Central Administrative District of the new Chinese Capital to be built at the south of Sun Yat-sen Mausoleum and Ming tombs, along the middle axis between the two complex, in order to show the Kuomintang Party and the Republic as the inheritors of the legacies of Sun Yat-sen. Henry Murphy, who since 1912 made projects for several US university campus in China experimented an eclectic combination of Chinese architectural forms with modern reinforced concrete building technology named “adaptive architecture”.

One of the variant of his project for Nanjing Central Administrative District, which can be compared with the master plan of New Delhi made by Edwin Lutyens, or Washington, D.C. by L'Enfant, was presenting not only adaptive

buildings but also an adaptive plan. In a scheme that reminds an imperial forbidden city, at the end of central axis, instead of the Parliament, Murphy put the Central Station complex that was formed by three huge buildings in an “adaptive style” with Chinese Big Roof: the Central Station in the middle, Post bureau and Railway administration on the two sides. The Station assumed the shape and the character of an imperial palace, or of a monumental mausoleum, as a part of the monumental ensemble of the Ming tomb and the Sun Yat-sen Mausoleum. Its Chinese Big Roof, probably was one of the first samples applied on a railway station in China. According to the first national railway project made by the Pater Patriae Sun Yat-sen, Nanjing should have to become the heart of the railway network of China, thus the emphasis of the Henry Murphy gigantic building in Chinese Style sounds more comprehensible. The vision of the plan, including the architecture of the station and of the other adaptive buildings forming the district, demonstrated a strong will and proudness for the first Chinese republic country which replaced the feudal regime that humiliated by defeat in the last 100 years.

Although Henry Murphy project was just a sketch his idea had a great influence in the further development of the official image of the Chinese railway Station. Already in 1940s the Hangzhou station designed and built up by Japanese was like ancient Chinese palace presents such big roof. As we will see later, a similar shape reappears in the 1990’s in the postmodernist image of the gigantic Beijing West Station.

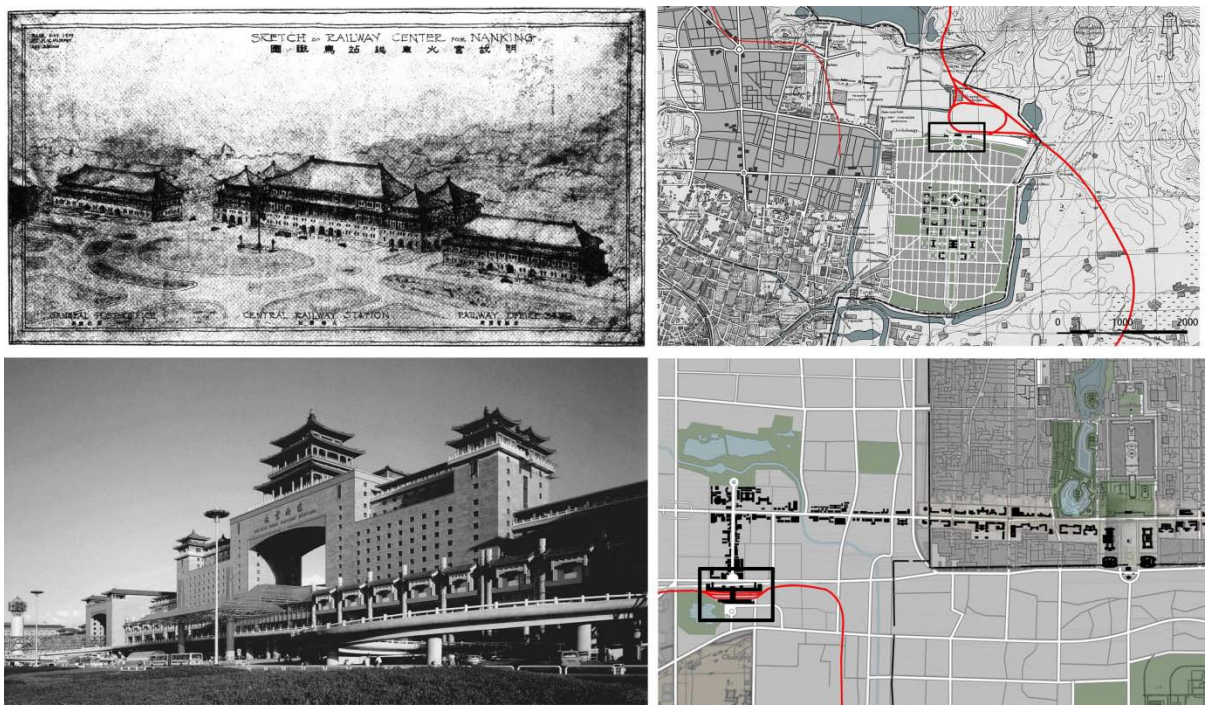

Figure 3. Nanjing Central stationa (Project, 1930) and the Central Administrative District in Capital Plan, with the Beijing west station (1996). (Source of painting of Nanjing station: Technical office of Capital plan(2006).*Capital plan: 1929*.Nanjing: Nanjing Publishing House.)

3.Railway Station and National Rebirth. The Beijing Celebration

After the foundation of the People's Republic of China, the new Communist government which claimed to be independent from foreign influences promoted the construction of the new central station of the Capital of People's Republic.

The area of the old railway hub made of two separate station facing each other on the two side of the Zhengyangmen (the South gate of the inner city wall) and directly connected with the area of the legation of the colonial powers was almost demolished to thoroughly eliminate the memory of the humiliating experiences occurred during the colonial times. Indeed the two stations of 1912 Beijing hub, built by the French and British companies, were set like a pair of pliers to hold the Zhengyangmen city gate and its barbican, as a symbol and metaphor of the control on Chinese feudal court by the foreign forces. Only one of the buildings of the old railway hub survived (the British station to Shanghai) and was converted in a market (later a railway museum) and the city walls were

also destroyed. Thus the siege of “imperialism” and “feudalism” was removed. The former central station and the station square were enclosed in the great urban ensemble of Tiananmen Square, symbol of the rebirth of the nation.

In the meantime, after some debate on how to build new administrative facilities, the government decided to create the new Chang’an Avenue as the west-east axis to break and dilute deliberately the imperial symbol of the ancient north-south axis. Along this avenue were built the most important state facilities: government palaces, conference halls, museum, cultural buildings and its official status has been reinforced many times by the parades of anniversary national day. The Avenue immediately became the political and cultural centre in Beijing, and strengthened the new urban image of the new regime.

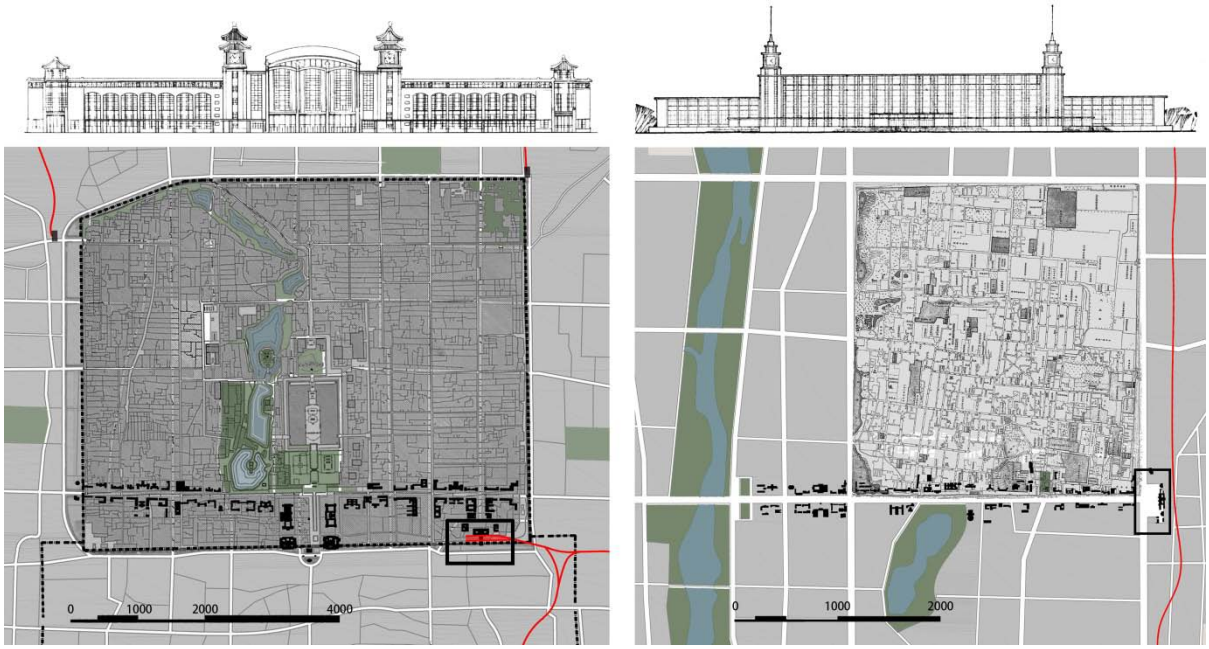

Figure 4. Beijing Central station (1959) and Chang’an Avenue. Taiyuan station (1975) and Yingze Avenue. (Source of facades of stations: Starndard department of the third railway survey and design institute. (1977). *Tielu lükezhan jianzhu sheji = Architectural Design of Railway Passenger Station (ed.)*. Beijing: China Architecture & Building Press.)

The new central station was linked to Chang’an avenue through a short but large perpendicular avenue, at its east end. The building was designed by the Chinese architects Yang Tingbao and Chen Dengao, and belongs to the Top 10 buildings

for the 10 years anniversary ceremony (1959) of the foundation of People's Republic of China. The station consisted a central concourse with the facade formed by three large arched windows and porch, with two clock towers and two small towers in each wing. The project, as for some other buildings realized in 1950s, followed the influence of the soviet experience of the redesign of station like a national palace. This image of the station as "people's palace" was to celebrate the people's country, and display the new power of "People". Soon Beijing station and Chang'an avenue became a sort of prototype, a model of "official socialistic architecture" and his layout as many his architectural motives and features were repeated in many other provincial capitals. In some cities like Taiyuan (Shanxi province) and Changsha (Hunan province), the reference to Beijing involves both the architectural as the planning archetype. In the case of these provincial capitals the replicas of the Beijing archetype the new urban axis and the Station give place to the "civic center" of the city. Getting out of station, passengers could immediately notice the most spectacular avenue of the city and the shape of the Station building, for its position and scale, accompanies them throughout all the journey on the axis.

Such solution manifested the national rebirth by creating in every provincial capital an unified and impressive urban image based on a common archetype.

4. Conclusion

The archetype of the Central station as a Gate to a monumental urban axis had been repeated again in 1996 in the well-known Beijing West station. Here the station building is a sort of high wall in red brick with an arch in the middle supporting a series of pavilion in "adaptive style" with big Chinese roofs on the top; from the arch is originated an urban axis with similar proportions and whose architecture shares the same features of Chang'an avenue in a postmodernist taste.

In more recent cases the new majestic buildings of the station of the high speed railway, since they are almost located in new development area of wide

metropolitan region reproduce urban images that remind the “Japanese business city” or the “Russian planned cities”. These contemporary cases (as for instance in Shenzhen central station and in Guangzhou south station) demonstrate in a certain sense how the colonial and postcolonial archetypes of the urban complex station/monumental axis has been reproduced by metamorphosis and adaptation to new gigantic scales and to traditional tasks as the one to be the core of the new city, as it happened in Harbin at the beginning of the railway architecture history in China.

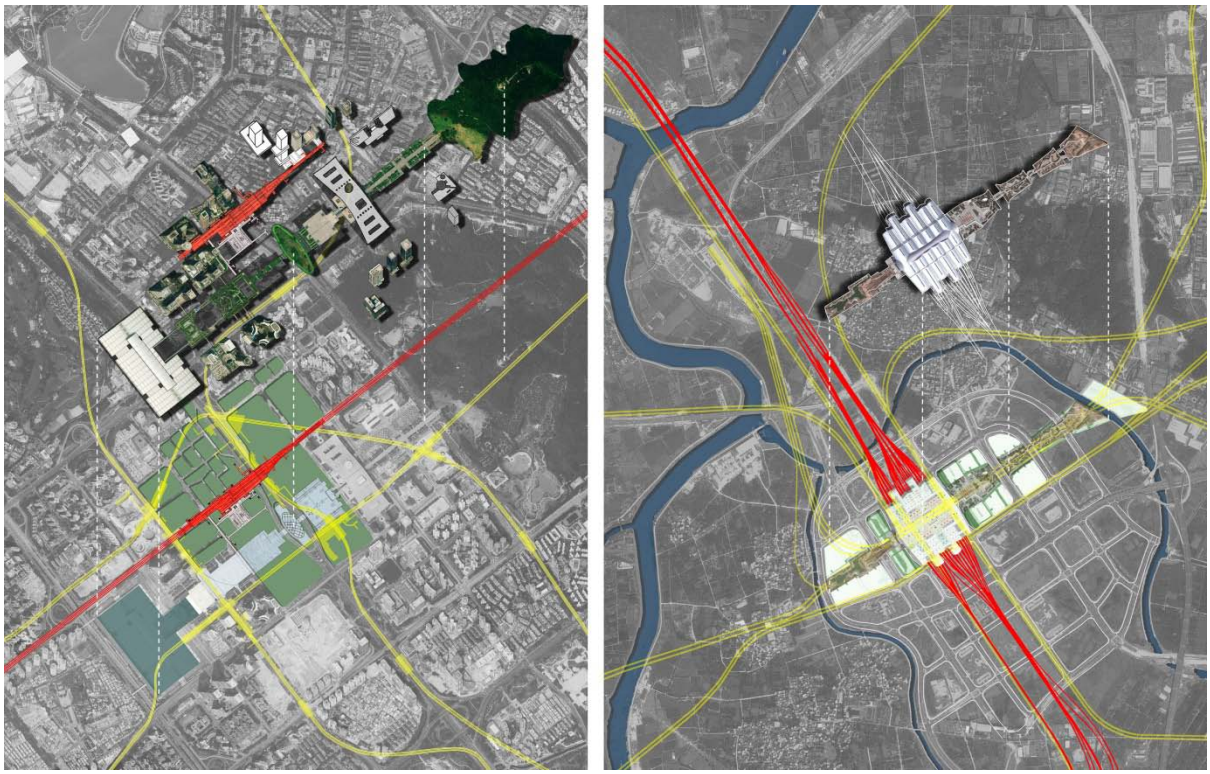

Figure 5. Shenzhen Central station (2014) and Guangzhou south station (2010), with their urban complexes.

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THE NEW TOWNS AROUND PARIS. WHAT HAVE THEY BECOME FORTY YEARS LATER: NEW CENTRALITIES OR ORDINARY SUBURBS?

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Abstract

Launched in the middle of the sixties, the urban plan (SDAU de la région Parisienne) has deeply changed the face of the first agglomeration of France: five New towns have been progressively created in order to resolve some of the main problems in terms of urban amenities or economic efficiency,. Located in the urban fringes, they should reorganize the whole agglomeration following a polycentric model. At first, the success of the project was directly depending on State's support. Then, the New towns have become more autonomous, generating their own attractiveness. Forty years later, even if the project is not yet totally finished, it may be possible to evaluate the various consequences of this vast scheme. To begin with, the demographic weight of the new towns is not so important than initially expected: less than 8% of the whole population of the agglomeration of Paris in 2006. Their economic weight is about the same: less than 7% of the agglomeration. Nevertheless, the New towns concentrate an important quantity of diversified jobs and they succeed attracting firms in different activity sectors, even if each one of them does not possess the same advantages. Because of this you may conclude that the New towns have partially reached their initial goals: to create new centralities in the suburbs and to break with their lack of jobs and urban amenities. Although the suburbs of Paris are much more diverse than we generally think, the New towns have contributed to a necessary improvement of their socio-spatial organization. However, the recent urban policy in the agglomeration of Paris, called Grand-Paris, is absolutely not based on the New towns.

Keywords*:* New towns, Territorial inequalities, Urban planning, Polycentrality, Territorial attractiveness

Introduction

In middle of the sixties, the President of the French Republic decided to reorganize the agglomeration of Paris. The basic reason for this new urban policy was the demographic increase of the agglomeration and the lack of urban amenities in the suburbs. Furthermore, the urban planners thought that the urban sprawl could not be stopped, and consequently they preferred to guide it. The projects of this new urban policy should improve the territory's organization,

including the economic development and offering a better quality of life to the citizens. These New Towns should be a good working and living place for different kinds of people. As a result, five New Towns were built around Paris. Located at thirty kilometers from Paris' city-center, they were supposed to create new centralities within the suburbs. Their success was depending on economic and demographic attractiveness. Forty years later, it may be possible to observe the main results of this policy. This paper aims to analyze the influence of the New Towns on the urban system of Paris. Accordingly, official data (old and recent) have been used. Moreover, it should be interesting to examine what kind of cities they have become. Have they become new suburbs integrated into the old ones or do they create new centralities located closely to the urban fringes? As a matter of fact, this paper will depict that the initial goals have been partially reached. In addition, it will describe the possible futures of these "old New towns". How can they continue alone, without State's support? What are the good factors framing their territorial identity?

The origins of the New towns project: to build new centralities in the suburbs

When the territorial scheme, called SDAU RP (Schéma Directeur d'Aménagement et d'Urbanisme), was launched in 1965, it was totally different from the previous one (Vadelorge, 2004; Cottour, 2008): First, Paul Delouvrier[1] and his team accepted the demographic increase of the agglomeration of Paris. They thought that it should reach 16 million of inhabitants at the end of the XX^{e} century. A large part of this new population would have to live in one of the eight New towns. Later on, they should be reduced to five (Cergy-Pontoise, Evry, Marne-la-Vallée, Saint-Quentin-en-Yvelines, Sénart[2]) based on the real growth of population. Nevertheless, the actual part of the population living in these New towns has increased from 1.9% in 1968 to 6.9% in 2006[3] (Fig. 1). At the same

[1] He was main manager having to think up the new organization of the area of Paris (Murard & Fourquet, 2004). The term of "New town" had been considered as the more appropriate (Béhar, Estèbe & Gonnard, 2002).
[2] The names of some New towns will be changed in the eighties. Thus Melun-Sénart will become Sénart. We are using in this paper the present names of each territory.
[3] In order to calculate these rates, the official limits of the agglomeration of Paris in 2010 have been used (cf. Insee). This one is defined as UU (Urban Unity).

time, old suburbs have stayed at the same level, more than 62% – Secondly, the New towns had to plan different kinds of housing, not only public housing but also private housing and housing for property buyers. The urban planners should not build up the new “grands ensembles” (Hirsch, 1990), which were criticized already for the monotone pattern and the lack of urban amenities (Peillon, 2001). In the future, New towns should not make the same mistakes. Hence it was strategic to create many jobs, the most diverse as possible. The settlement of public or private companies on these territories demanded a high quality of the activities’ area and the transport facilities. Even if there was no exact quantitative goal fixed in the SDAU RP report, the target was close one to one: one workplace located in each New town for one employed worker living there. This did not mean that workers had to work and live in the same place. Finally, the creation of New towns should reorganize the metropolitan area of Paris throughout new centralities in the periphery. This may be seen as a paradox. However, it is not considering the spatial organization of the agglomeration of Paris at the beginning of the sixties. The city-center of Paris concentrated population and activities. The lack of urban amenities in the suburbs was an important problem. The main challenge was to do urban planning on the agglomeration’s scale. Even if the SDAU RP of 1965 cannot be reduced to the New towns, it is obvious that they have produced a new way to organize Paris and his suburbs. New towns have broken with the mono-centrality of this agglomeration and they made it possible to realize a polycentric plan (Fouchier, 1998). In comparison with the UK, they were, closer to the center of Paris (about thirty kilometers) than the New towns of London.

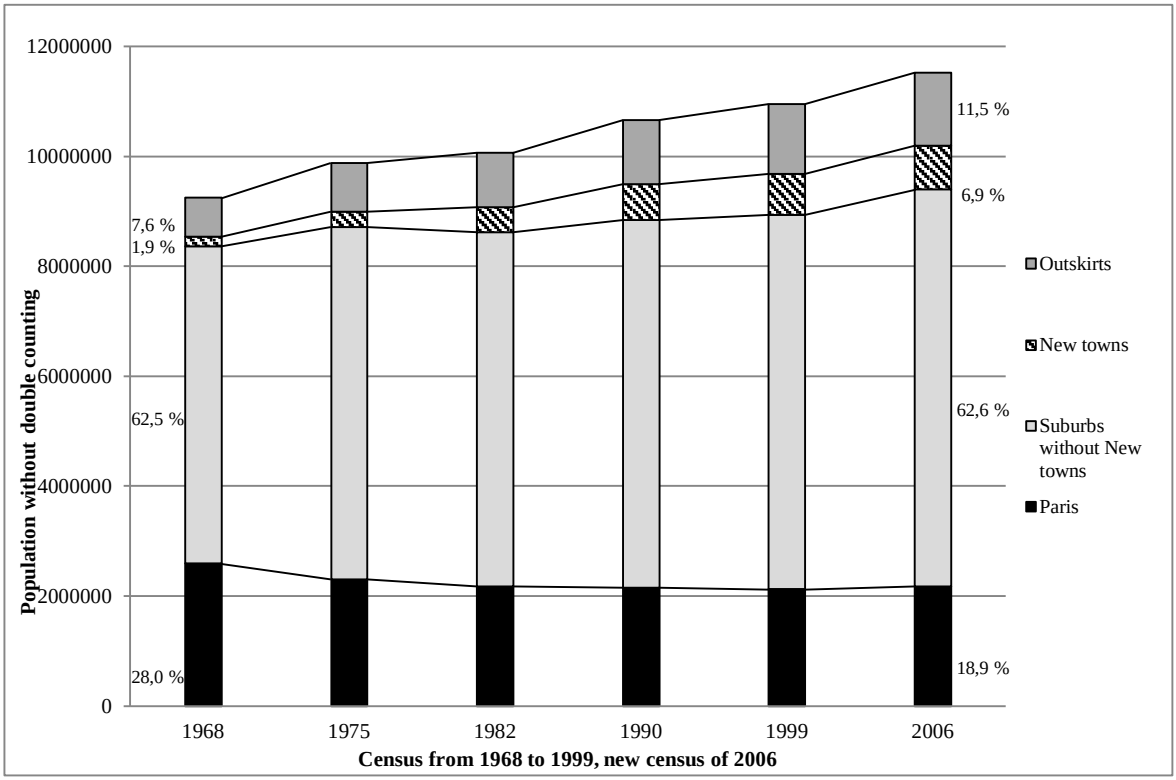

Figure 1: Demographic evolution of the New towns around Paris in the region of Île-de-France, from 1968 to 2006. Source: Insee, census from 1968 to 1999 and new census of 2006.

For a long time, the success of this project was depending on State's support. This factor was identified as a possible failure by the DATAR (Direction à l'Aménagement du Territoire et à l'Action du Territoire, created in 1963). In fact, it was difficult to imagine that such an urban policy could be executed during forty years.

What kind of people have chosen to live in one of the five New towns?

In the middle of the sixties, populations living in these areas[4] were very small: 41,912 inhabitants in 1968 in the case of Cergy-Pontoise, 24,866 in Saint-Quentin-en-Yvelines, 8,558 in Evry, 17,195 in Sénart and 85,353 in Marne-la-Vallée. Besides some towns as Pontoise, these spaces were yet rural and unconnected to the agglomeration of Paris.

[4] The areas of New towns have changed after the 1983's law. Community councils were offered the possibility to integrate a New town or to stay out. Some of them have chosen to leave the New towns. In this paper, we are using areas resulting of these local decisions.

To reach their objectives, New towns not only had to attract inhabitants but also population with different social profiles. First, we need to analyze demographic trends. Between 1968 and 1990, density's increase can be explained by an important residential flow. For example, the density of Cergy-Pontoise was 476.3 inhabitants by km² in 1968 and 1815.5 in 1990. In the same time, the density of Saint-Quentin-en-Yvelines increased from 365.7 to 1892.1 inhabitants by km². Thus, population of each New town has been multiplied from 3.2 (case of Marne-la-Vallée) to 9.8 (case of Evry) since their foundation[5]. While peripheries won a lot of new population, Paris and first belt of the suburb knew a negative migratory balance (Berger, 2004). However, it appears that losses of population are stopped since a decade in the agglomeration's center.

Profiles of new inhabitants have been analyzed very seriously by each New town. In fact, urban managers and politicians needed to know who were the "pioneers" living in New towns (Roullier, 1989; Léger, 1997; Pedretty-Ndiaye & Tréhin-Lalanne, 2009). For the seventies and the eighties, newly arrived inhabitants[6] of New towns were young and belonged to middle class. Their age pyramid was characterized by adults of thirty years old and their children. This was one of their characteristics compared with other parts of the suburbs. Forty years later, situation has changed: the median age has become older and weight of young population is now less important.

Concerning the social situation, New towns have depended on the trend of the whole region[7]. Regarding the situation of all suburbs, New towns included, the share of blue collars was 30.1% in 1975, 22.7 % in 1990 and only 15.7% in 2010. The share of executives and professionals has increased in the same time: 12.2% in 1975, 18.3% in 1990 and 24.7% in 2010. This SPC is now one of the

[5] Cergy-Pontoise has 187,388 inhabitants in 2006; Saint-Quentin-en-Yvelines, 146,573; Evry, 83,448; Sénart, 103,592 and Marne-la-Vallée, 276,907. The first urban plan of 1965 indicated that each New town would have to reach a population of about 400,000 inhabitants in 2000. The actual reality is far away from the initial goals.

[6] Urban morphologies of New towns were complex: new housings had to share the territory with old villages or little towns.

[7] It is difficult to compare situation in 2010 with 1968 because of the change of socio-professional categories (SPC) in 1982 (http://www.insee.fr/fr/methodes/default.asp?page=definitions/nomencl-prof-cat-socio-profes.htm). These modifications have been particularly important for Employees and Executives and Professionals. To resolve this problem, we are using harmonized data describing SPC of active population (having a job or not) and having 25 years old at less (http://www.insee.fr/fr/themes/detail.asp?reg_id=99&ref_id=pop-act-csp-dipl).

three most important in the agglomeration of Paris, after employees (28.1%) and intermediate occupations (27.1%). This evolution results from the economic structure of the region always more specialized in high levels of qualification. The reason of blue collar's decrease can be explained by the rise of the tertiary sector and also by the disappearance of factories. Some of them went simply bankrupt; other ones have gone away from the region, looking for low wages or more important land opportunities.

Social profiles of New town's inhabitants can't be only defined by the status of these territories. Indeed, it is necessary to take into account the location of the New towns (Fig. 2). The share of executives and professionals is higher in the west part of agglomeration, so Saint-Quentin-en-Yvelines is characterized by high proportion of this SPC (10.9% in 1975, 20.2% in 1990 and 29.4% in 2010) comparing to the average of the whole suburbs. Conversely, share of this SPC are low in Sénart (14.8% in 1975, 14.5% in 1990 and 15.7% in 2010) and even decreasing in Evry (15.2% in 1975, 16.3% in 1990 and 14.6% in 2010). Thus, it is not possible to describe New towns by just one pattern. If they depend on the spatial sector where they are located, this explanation must be completed by other ones. Indeed, social contrasts inside each New town are also important. Rate of blue collars among the workers has grown in relation with rate of public housing. Consequently, New towns cannot be boiled down to just one model.

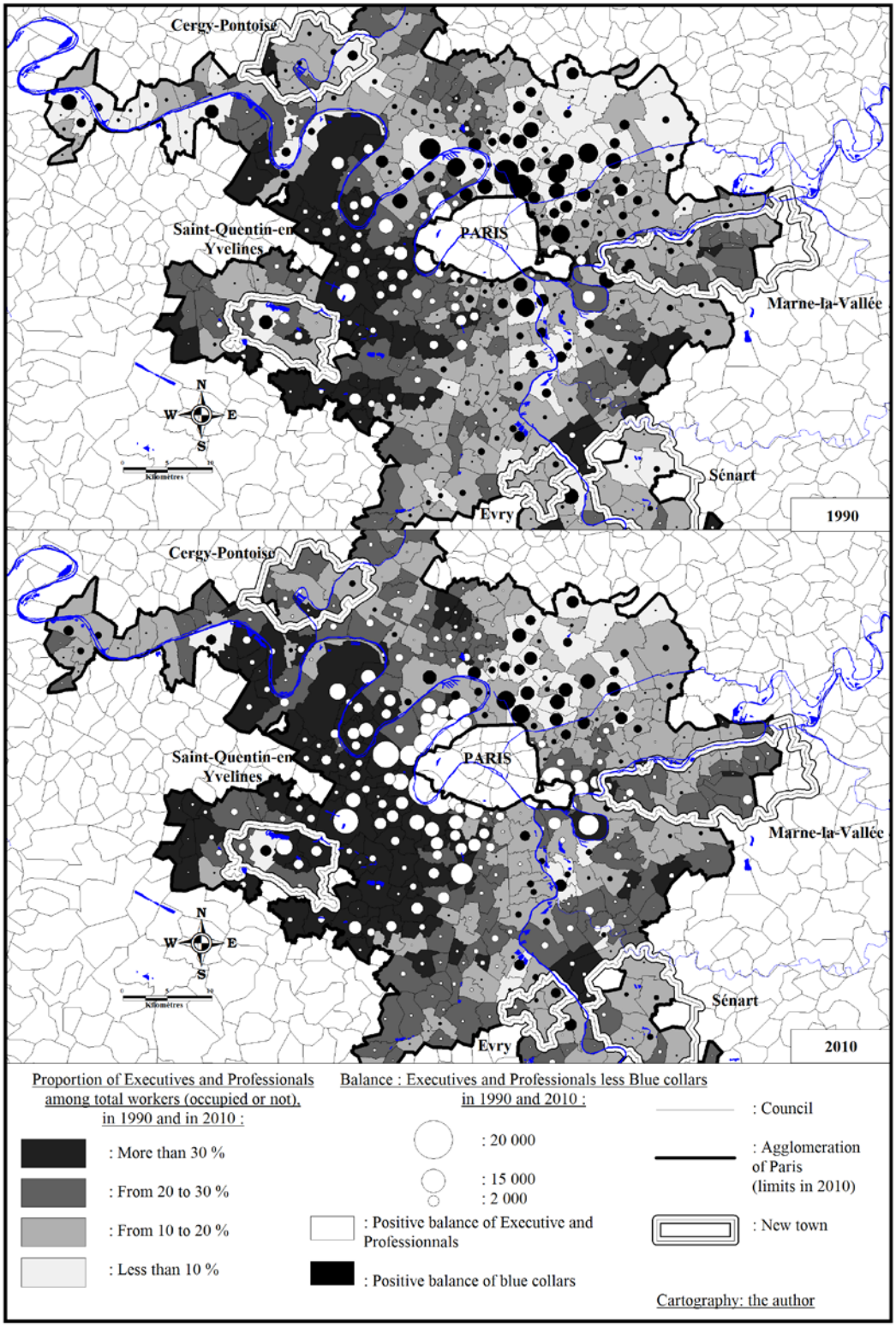

Figure 2: Rate of executive and professionals among workers living in the councils in 2010 and balance executive and professionals less blue collars in 1990 and then in 2010. Source: Insee, census from 1968 to 1999 and new census of 2006. All the data are harmonized.

What kinds of jobs have been located in the New towns?

As indicated previously, economic challenge was a big issue for the project of New towns and probably the main condition of their success (Merlin, 1982). Concentration of activities in Paris and his first belt of suburbs was considered a difficulty for the whole agglomeration. Indeed, the lack of jobs in a large part of the suburbs would be able to block up the city-center because of the increase of commuting mobilities. Deconcentration of jobs should allow best share of activities and reduce distances between living and working places. From the seventies on, New towns should become a tool for economical reorganization of the agglomeration. In the first place, State helped New towns to appeal firms and jobs by taxes advantages and administrative authorizations. In the middle of the eighties, New towns did not benefit from such help anymore. Nevertheless, ratio "jobs to employed workers living in New towns" increases regularly except for Sénart (Fig. 3). As ratios are higher than 1, it is possible to consider New towns real activities' centers. However, these ratios can be very different in each New town, according to the location of residential and activities' areas.

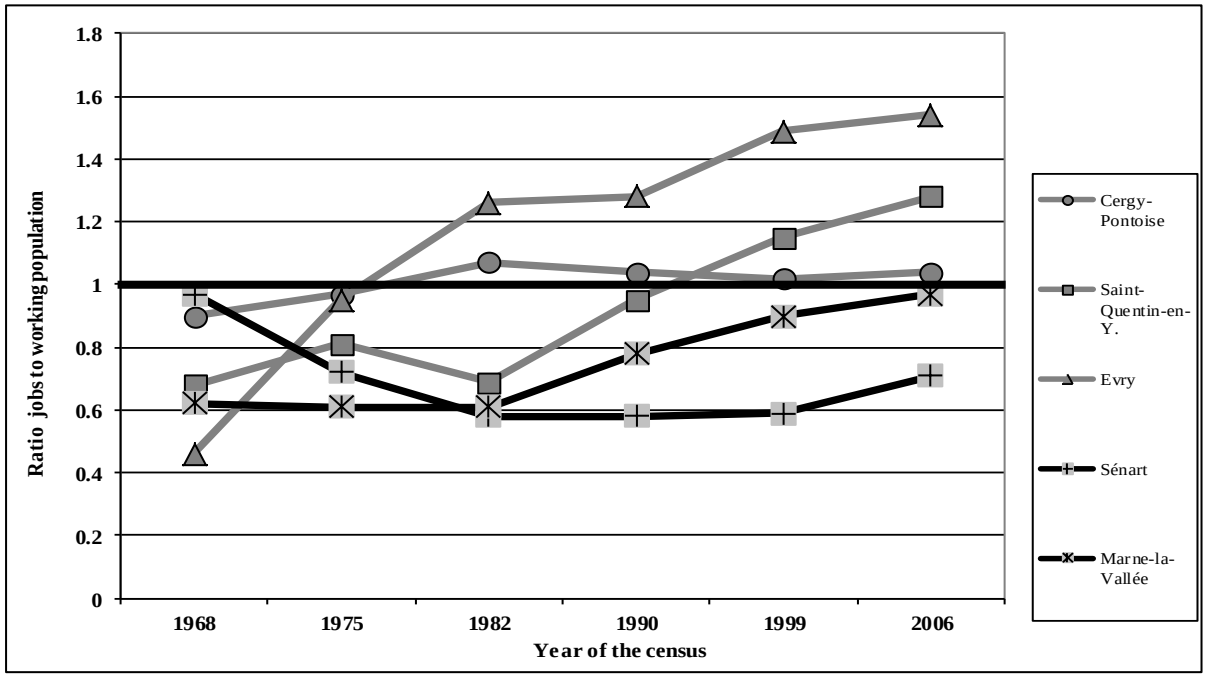

Figure 3: Ratio "jobs to working population", in each New town, from 1968 to 2006. Source: Insee, census from 1968 to 1999 and new census of 2006.

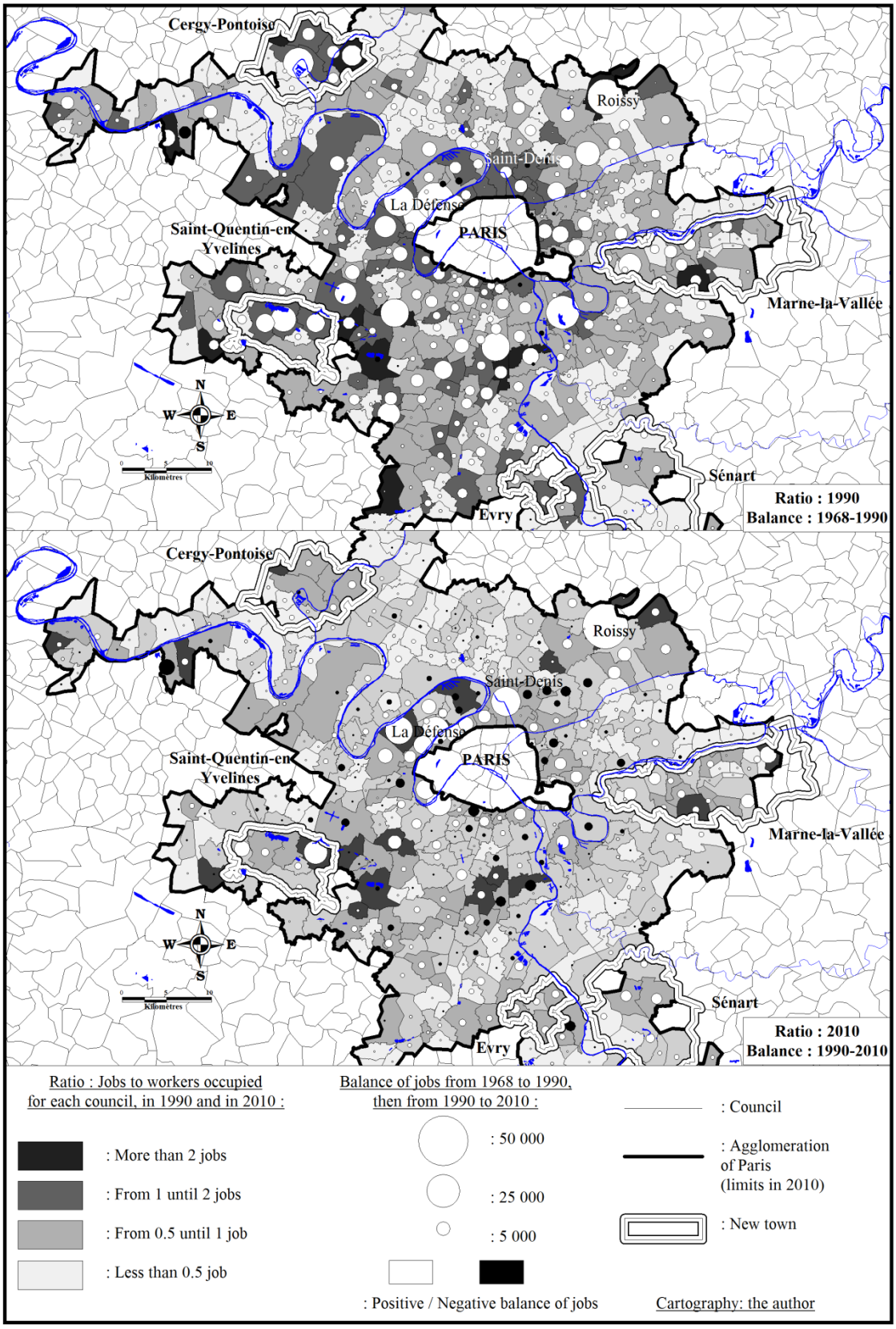

Figure 4: Ratio: "Jobs to workers occupied in 1990 and 2010", and balance of jobs from 1968 to 1990, then from 1990 to 2010. Source: Insee, Census from 1968 to 1999 and new census of 2010. All the data are harmonized.

The number of jobs located in New towns has grown enormously until the end of the eighties: 31,756 in 1968, 65,185 in 1975, 119,700 in 1982, 219,735 in 1990, 293,703 in 1999 and 317,754 in 2010. However, they just represent a weak proportion of the whole suburbs' jobs[8]. The share of each New Town has changed during this period. Thus, in 1968, 43% of these jobs were located in Marne-la-Vallée, 30% in Cergy-Pontoise, 15.6% in Saint-Quentin-en-Yvelines, 8.3% in Sénart and only 3.1% in Evry. Forty-two years later in 2010, the rates have respectively become: 31.4%, 21.6%, 23.8%, 8.6% and 14.6%. Since 1975, Sénart has always been characterized by the lowest rate among New towns.

Job balance was particularly positive from 1968 to 1990 but less high between 1990 and 2010 (Fig. 4). Some explanations can be suggested: - 1) When State stopped strongly helping the New towns; they had to generate their own economic attractiveness (Davezies, 2004). This situation started with the change of their status in 1983[9]. From this moment on, these New towns didn't benefit anymore from the same ideal conditions[10]. - 2) Among the five New towns, differences have to be emphasized. The share of public jobs is very important in Cergy-Pontoise and Evry which have become administrative centers. Saint-Quentin-en-Yvelines has caught a lot of headquarters of major incorporated companies and some of their research centers. – 3) During the seventies and the eighties, the first belt of suburbs has lost a lot of jobs most often industrial ones. As a consequence, brownfields appeared in these communities. In a second time, theses brownfields have offered territorial opportunities for other companies. They choose to locate some of their activities on these sites previously given up. Saint-Denis could be a good example of this profound

[8] Among all the jobs of the suburbs, the proportion of those located in one of the five New towns was: 2.3% in 1968, 3.6% in 1975, 6% in 1982, 9.4% in 1990, 11.3% in 1999 and 11.6% in 2010.

[9] New towns can be considered laboratories of a new intercommunality pattern (Estebe, 2005; Desponds, 2008). The concept of "New town" now should just be applied to Marne-la-Vallée and Sénart because Evry has joined the common law in 1998. Cergy-Pontoise and Saint-Quentin-en-Yvelines have followed the same way in 2004. Nevertheless these territories are still seen as "New towns".

[10] This statement must be tempered: in the early nineties, French government launched a big university plan (called "University of the Third Millennium") allowing creation of new universities in four New towns (Cergy-Pontoise, Evry, Marne-la-Vallée and Saint-Quentin-en-Yvelines). This is now one of their most important assets.

mutation (Fig. 4). – 4) In terms of job's increase, Roissy and La Défense have been clearly the most dynamic places for the period 1990-2010 (Fig. 4).

Comparing the quantity of jobs is necessary, it is also important to know what kind of jobs are located in these New towns. Are New towns different from the other part of the suburbs? Is a New town really different from the other ones? Among all the jobs, the share of executives and professionals increased in all the suburbs (New towns included): 12.1% in 1975, 20.2% in 1990 and 28.7% in 2010. In the same time, job of blue collars decrease: 34% in 1975, 23.1% in 1990 and 14.5% in 2010. New towns follow this trend for the executives and professionals like for the blue collars[11]. However, situations are very various from a New town to another one. Proportion of executives and professionals become the highest in Saint-Quentin-en-Yvelines (12.1% in 1975, 27.9% in 1990 and 41.4% in 2010) and stay the lowest in Sénart (13.2% in 1975, 14.6% in 1990 and 17.2% in 2010).

The New towns: are they truly different from the ordinary suburbs?

When we are using the word "ordinary suburbs", what does it mean exactly? Such a concept is partially an absurdity because no suburb is "ordinary". Indeed, 7.22 millions of inhabitants live in this part of the agglomeration of Paris in 2006 and urban morphology of these territories is very different from one place to another. Nevertheless, "ordinary suburbs" can be put in relation with following ideas: weak quantity of jobs, lack of activities' diversity, lack of urban amenities, weak rate of executive and professionals among all the jobs, great dependence on other places of activity, small size of the area of economic attractiveness, difficulties to draw in qualified workers, lack of social diversity among living population.

For some of these points, previous analyses have detailed that New towns hold many advantages in term of economical dynamics. They have contributed to reduce the traditional gap between Paris and its suburbs. This evolution results highly from the links between knowledge institutes and companies. However,

[11] For executives and professionals, the rates are: 11.3% in 1975, 22.8% in 1990 and 28.7% in 2010. For blue collars, the rates are: 33.8% in 1975, 19.2% in 1990 and 14.2% in 2010.

Sénart cannot be associated to this description. Its level of economic activity is yet too low and the quantity of companies still insufficient.

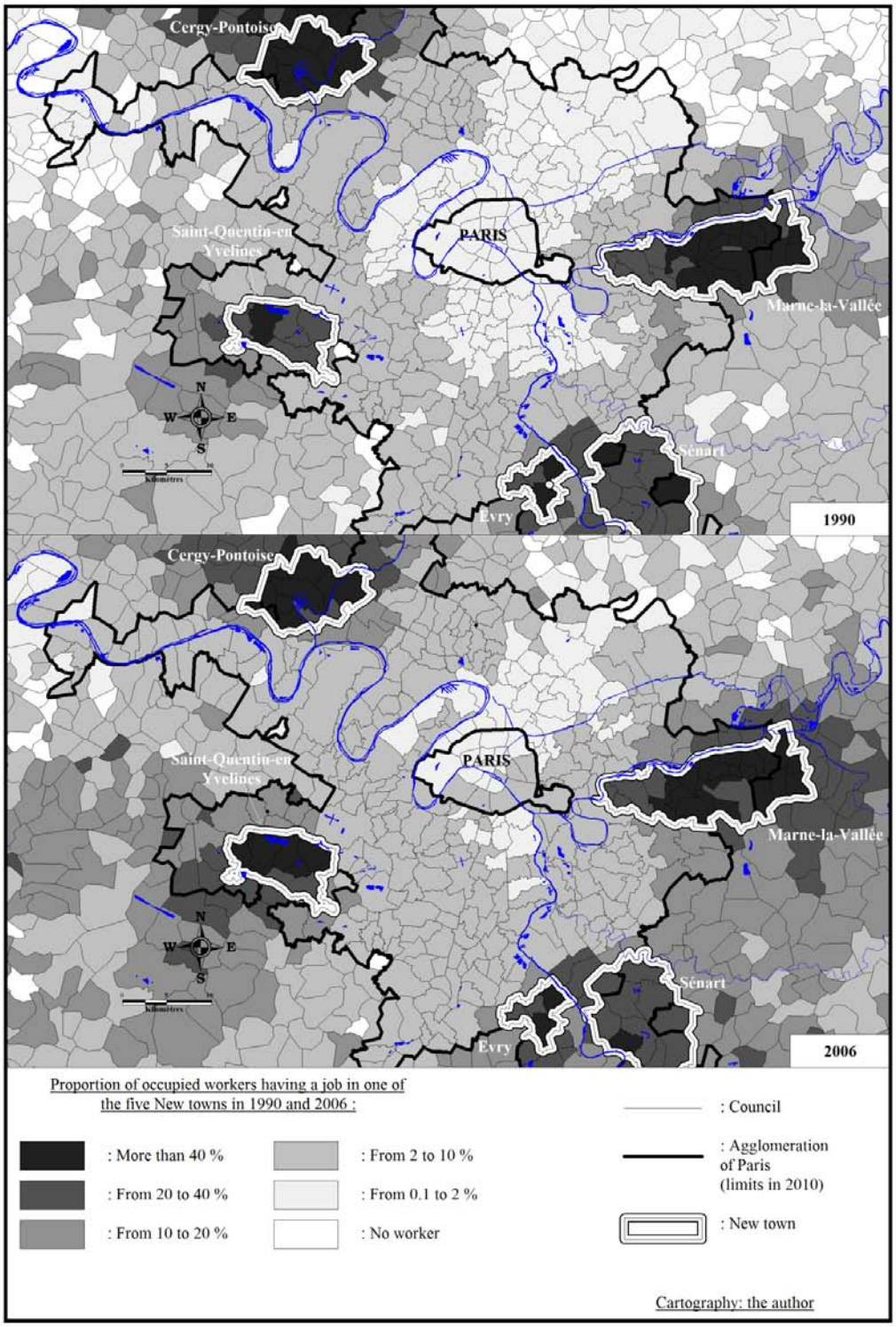

Figure 5: Polarized areas by the New towns in 1990 and 2006. Source: Insee, census of 1990 and new census of 2006: files of commuting mobilities.

In the whole metropolitan area of Paris, the separation between living and working places has increased from 1990 to 2006[12]. The rate of stability[13] depends on the living place (Beaufils & Courel, 2012): it is decreasing from the center to the periphery. Located in the urban fringes, New towns are characterized by inferior levels than Paris. However, these rates change from one New town to another. Thus, the rates in Cergy-Pontoise were: 53.1% in 1990, 47.8% in 1999 and 45.9% in 2006, and respectively, 37.8%, 40.2%, 42.2% in Saint-Quentin-en-Yvelines, 41.3%, 38.2%, 37.1% in Evry, 38.4%, 36.9%, 39.8% in Marne-la-Vallée and 28.3%, 27%, 29.1% in Sénart. The probability to work where you live increases when the jobs' quantity grows more quickly than the employed inhabitants (Fig. 3). Considering this argument, the situation of New towns can be considered relatively good.

We also need to know the areas of attractiveness of the New towns in order to evaluate their importance. Are they depending on Paris or have they contributed to build a polycentric agglomeration (Fouchier, 1998; Berroir, Cattan & Saint-Julien, 2005; Desponds, 2005, 2012)? The New towns predominate not only on their own territory but also on the agglomeration's fringes (Fig. 5). These rural territories are more polarized by the economic power of the New towns. This does not mean that these New towns strengthen the urban sprawl, but rather that they offer job opportunities and quality of urban services to the population living in these territories with low density.

In conclusion: New towns: are they the forgotten territories of the Grand Paris urban plan?

At the beginning of the sixties, jobs were concentrated in Paris or its close suburbs which had not enough urban amenities for an increasing population. The initial project of the New towns aimed to reorganize the whole agglomeration of

[12] For this study, files of commuting mobilities have been used, in 1990, 1999 and 2006. In 2006, 25.9% among the workers of Île-de-France live in the same place. They were 25.5% in 1999 and 28.8% in 1990. Except for the twenty boroughs of Paris, rate of stability has decreased of 2 points from 1999 to 2006 in the region of Île-de-France.

[13] The rate of stability is defined as share of employed workers of an area having a job where they live. In this case, it is calculated at the New town's scale, by consequence it cannot be directly compared with the previous rate calculated at a more local scale (town or borough for Paris).

Paris highly centralized among the big cities (Beaucire, 2000; Pachaud, 2006). Forty years later, it is not easy to conclude definitively about the success of this story. On the one hand, the main goals have been reached: economic activity has increased, jobs are diversified, quantity of jobs is generally higher than employed workers, rate of stability for working population is important in the context of Île-de-France, and lastly the population living in the New towns is socially mixed. On the other hand, the economic and demographic factors of the New towns remain static compared to the other suburbs and don't increase since a decade. However, this trend must to be tempered according to the specific situation of each New town. If New towns are not totally different from the other parts of the suburbs, they cannot be qualified as ordinary. Indeed, they contribute to polarize the urban fringes of the agglomeration.

The situation of these New towns in the urban system of Paris cannot be considered as definitively guaranteed. The recent urban dynamics point to a reconcentration of the activities near Paris. Moreover, the second belt of suburbs and in particularly to the "old New towns" just play a marginal role in the Big project of Grand Paris (Subra, 2012), launched by the government of Nicolas Sarkozy in 2008. For example the New towns, except for Marne-la-Vallée, should be badly connected to the future transport networks. This represents a risk for the development of these territories and can be analyzed as a major factor of uncertainty.

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For have more informations about the subject, go to Internet site of the Ministère de l'Equipement et du logement: Urbamet : http://www.urbamet.com/ or the one of Institut d'aménagement et d'urbanisme de la région Île-de-France (l'Iaurif): http://www.iaurif.org/

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LIFE VERSUS ARCHITECTURE.
Rationalist ideals facing popular taste, from Pessac to Malagueira.

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Abstract

The clash between the aesthetics produced by rationalist ideals of the modern movement and the taste of the dwellers is always present, in urban extensions designed in the XX century.

In plans based on single-family housing, this clash led to interesting phenomena of physical transformation of the proposals of the architect, creating hybrid constructions in which it is difficult to recognise the original design.

The "Quartiers Modernes Frugès" (1924-27), design by Corbusier in Pessac (near Bordeaux, in France), is a famous case study of this phenomenon. Commissioned by the French industrial entrepreneur Henry Frugès, it began as a very ambitious plan that aimed to build one hundred and thirty-five houses disposed around a commercial square, but was not completed according to the original plan. Furthermore, some of the houses were altered by the dwellers in a way that was completely unexpected to Corbusier, which commented on the fact with the famous ironic statement: 'It is life that is always right and the architect who's wrong.'

In Portuguese architecture, mainly in the SAAL Program, we can find interesting examples of this confrontation between life and architecture. However, between the experience of the interventions in Porto and the later construction of the urban extension in Malagueira, designed by Álvaro Siza nearby Évora, we can find a very important change: in the second case, the posture of the architect is different, aiming to work with the uncertainty of the final image of the dwellings and leaving to the future owner the possibility to adapt it to his own taste. This different posture makes a great difference in the final results of the intervention as a whole, allowing it to become diversified and alive.

Keywords: Pessac, SAAL, Malagueira, Participation, Uncertainty.

1. Pessac: Life is always right…

The "Quartiers Modernes Frugès" (1924-27) was commissioned to Le Corbusier and Pierre Jeanneret by Henry Frugès, a Bordeaux industrialist.[1] It was in 1921 that the client and the architects first made contact (Ferrand, 1998, p. 63); two years later, fascinated by his discourse on standardization presented in "Vers une architecture", Frugès commissioned the Swiss architect a small housing estate in Lège and a little house ('Maison du Tonkin') in Bordeaux, where Corbusier '*first tried out his Dom-ino System*' (Frampton, 2001, p. 22).

In 1924, the Tonkin house was completed and the Lège construction was in progress, but the problems that would mark its construction had not yet appeared;[2] encouraged by the apparent success of these first experiments, Frugès presented Corbusier with an irresistible invitation: '*I am going to enable you to put your theories fully into practice* (…) *to reach really conclusive results as regards the reform of low-cost housing*'; more than a housing project, '*Pessac should be a laboratory*', breaking '*all conventions*' and abandoning '*all traditional methods*' (Ferrand, 1998, p. 120).

In contrast to the Lège experience, Pessac was an ambitious enterprise: the initial plan aimed to build one hundred and thirty-five houses and a commercial square, in a site of 38,882 m2 purchased by Frugès in the outskirts of Bordeaux, eight kilometers away from the city (Ferrand, 1998, p. 76). For Corbusier, this was the first opportunity to apply his ideas, both on urban planning and on low cost housing. He designed his first 'cité jardin horizontale' (Frampton, 2001, p. 22), experimenting with his ideas on standardized construction, with the aim of providing affordable houses for the working class: the houses were destined to the workers of Frugès industries and should provide '*domestic and social hygiene* (…), *air, light and water* (…) *trees and gardens* (…) *and hence become the catalyst for happiness and pleasure*' (Ferrand, 1998, p. 72-3).

[1] Henry Frugés was not a common industrialist, he was also a man of culture; he described himself as a '*researcher, polyvalent artist, architect'* (without a diploma), '*painter, sculptor, pianist and composer, writer, art critic, historician, etc.'* (Ferrand, 1998, p. 64).
[2] In January 1925, '*the southern foundations of the canteen collapsed*' marking the beginning of various structural problems caused by '*the incompetence of Monsieur Poncet*', the first foreman of the construction, both in Lège and Pessac (Ferrand, 1998, p. 60).

Corbusier managed to build four types of dwellings (*Isolée*, *Quinconce*, *Arcade* and *Gratte-Ciel*), conceived as different associations of the same pre-fabricated elements, composed in a five-meter grid. The layout of the buildings was studied to achieve a collective quality in the site: '*External spaces are fused into one whole* (…) *minimising physical boundaries between the gardens*' (Ferrand, 1998, p. 86).

But the initial good intentions were challenged by reality. The construction process previewed the use of advanced technologies that presented several problems to the first constructor, Mr. Poncet: '*the concrete spray gun was hard to use*' and the pre-fabricated windows '*did not always fit the voids left in the structure*' (Curtis, 1986, p. 66). Even after the hiring of a new foreman, Mr. Summer, who was constructing the 'Pavillon de L'Esprit Nouveau' in Paris (Ferrand, 1998, p. 108), the difficulties did not stop: '*neither architects nor engineers had proper provision for drainage and this cost Frugés more money and headaches*' (Curtis, 1986, p. 66).

Due to all these construction problems and various administrative complications, the construction lasted longer and cost much more than planned. It was only with the intervention of Anatole de Monzie (the new Minister for Public Works)[3] that the bureaucratic problems presented by the prefecture were surpassed (Gans, 1987, p. 108). Pessac was officially inaugurated in 1926 (June 13), but from the one hundred and thirty-five houses planned only fifty five were completed (two of which were destroyed during the Second World War), in the sectors C and D. Sectors A and B, where a commercial square (and the other dwellings) should be, were never initiated (Ferrand, 1998, p. 108-10).

Meanwhile, the cost of the houses increased substantially and it became difficult to sell them; the first dwellings that were '*purchased in 1929-30 were already in a deteriorated state*'. In 1929, Henry Frugès went bankrupt and emigrated to Algeria, leaving the sales under the coordination of Vrinat (an engineer from

[3] Corbusier was introduced to Anatole de Monzie (Minister for Public Works since 29 octobre 1925) by Gertrude Stein; two years later, this acquaintance would allow the Swiss architect the commission of villa Stein, by Gabrielle de Monzie (the first wife of Anatole), Michael Stein (brother of Gertude) and his wife, Sarah, painter and art collector (Gans, 1987, p. 62).

Frugés factories); thus, '*the plots of land were sold off slowly, one by one, without a coherent development pan*' (Ferrand, 1998, p. 110).

Figure 1. '*Quartiers Modernes Frugès*', Pessac, Corbusier, (1924-27). Image of two '*type Quinconce'* houses: the one on the left was recently recovered according to the initial project; the one on the right still presents dwellers alterations (photo by the author, June 2007).

But as soon as the first dwellers began to inhabit the houses, they began to transform the purist architecture of Pessac '*in all sorts of individual ways, walling up ribbon windows, filling out terraces, dividing up the open-plan rooms, and so on*' (Jencks, 2000, P. 144).

On June 1931, Corbusier writes an alarmed letter to Vrinat, expressing his indignation on the way Pessac '*has been allowed to go to the dogs in such a disgracefully insane way*'. Corbusier complains specifically about the state of house n.º 14 ('*It now resembles some gaudy piece of architecture, the likes of which are found in pseudo-modern spa towns*') and refers that he '*simply cannot*

comprehend how you [Vrinat] *can have allowed the arcades to be filled in and staggered houses to be painted with glycine'* (Ferrand, 1998, p. 112).[4]

Figure 2. Closer view on the dwellers' alterations on the '*type Quinconce'* house shown in figure 1 (photo by the author, June 2007).

Later, in the end of his life, Corbusier recalls the Pessac experience with the expression '*you know, it´s life that's always right and the architect who's wrong*', that can be both interpreted as an ironic response to failure (Jencks, 2000, p. 144) or as a disguised commendation, implying *'that the houses had proven their ability to adapt over the long term*' (Ferrand, 1998, p. 118).

Either way, Pessac became a case study of the difficulties of acceptance of the purist aesthetics of the modern movement by the uneducated taste of the dwellers (Boudon, 1985). Corbusier was self-conscious (partially, at least) of the problem when he decided, during the construction, to finish the buildings with a polychromatic composition: '*The Pessac site is very enclosed. The grey concrete*

[4] Today, thanks to the careful restoration work carried out in Pessac, it is possible to see almost all of the houses in their original image. But the evolution of this neighbourhood is well documented in several studies (see, for example, Boudon, 1969).

houses gave rise to an unbearable compress mass, lacking in air. Colour was the solution' (Ferrand, 1998, p. 129-30). But, of course, colour was not the (only) problem; neither in Pessac, nor in many other examples of housing programs designed in the first half of the XX century, in which the clash between the aesthetics produced by rationalist ideals and the taste of the dwellers is quite obvious, sometimes in a dramatic way.

2. The SAAL Program: *the right to architecture*.

In the sixties and seventies, urban and architectural theories began to address the question of cultural and anthropological relativism and to deal with the issue of the participation of future dwellers in design decisions in housing projects. Authors from various related fields, like Aldo van Eyck, Lévi-Strauss, Bernard Rudofsky, Henry Lefebvre, Josep Coderch, John Turner, Christopher Alexander, John Habraken and Giancarlo De Carlo (among many others…) addressed this issue, with theoretical and/or practical work (Montaner, 2001).

It was in this cultural climate that, in 1974, the revolution of Abril 25 occurred in Portugal and the fascist regime that subsisted for the last 48 years was finally deposed. The consequent political changes allowed the beginning of the SAAL Program,[5] an ambitious program for the construction of social housing, promoted by the new government all over Portugal between 1974 and 1976.

Portuguese architects faced a paradoxical situation, given the urgency and scale of the needs of local populations and the will to apply two basic principles: the *right to the city* and *the right to architecture* (Bandeirinha, 2007). This attitude implied essential issues of scale, manifested in the relations of the different interventions with the urban environment and in the idea of participation of the future dwellers.

[5] SAAL, '*Serviço Ambulatório de Apoio Local*' (Ambulatory Local Support Service), was a national housing program created by Nuno Portas, Secretary of State of Housing and Urban Development, in June 1974.

The constructed results of the work of SAAL in Porto[6] constituted a small part of the initial ambitions: of the thirty-three operations that were initiated, twenty-three were not built (although, in most cases, the design process was completed) and in most of the remaining ten cases the construction was only partial. This relative failure (in view of the original intentions) can be partially related to the delays caused by the participation process: all the operations that were already in construction in 1976 (when the SAAL Program ceased to have the support of the central government)[7] were finished, at least partially (Fernandes, 2011, p.488).

The belief in the *right to architecture* implied an inclusive ideal of participation, in which '*the work of the architect could be classified as «secondary»*', due to the collaboration effort of the local population in the design process. But this intention was challenged both by the lack of references of the future inhabitants and by the difficulty of the designers to free themselves from their traditional communication methods. So, since the early stages of the projects, most of the architects began to complain about the lack of popular response, while the populations assumed their inability to criticize their work: '*I look at the model, analyze it and all I can think is that I would like to live in a house like that*'. (Bandeirinha, 2007, p. 167-9).

Confronted with this situation, the SAAL teams needed a pragmatic approach to enable an effective response in the short term; Porto architects would seek to create an informal (yet operational) organization, creating synergies between the various technical teams. The SAAL Process provided a laboratory field, where the need for rationality and economy fully justifies an attitude and language with modernist roots. So, most of the resulting housing schemes showed an uniform approach (which resulted of the need to respond to similar circumstances), with a set of common characteristics: organization in parallel volumes, often unrelated to the alignments of the pre-existing city, with long and narrow duplex dwellings (with around four meter's width, in most cases), a set of stairs in the

[6] With the exception of Massarelos and Bouça, all the interventions of SAAL in Porto are low density housing, either built in the consolidated city (Antas, Leal, S. Victor, Lapa) or on its borders, in suburban areas (Chaves de Oliveira, Contumil, Francos, Maceda).
[7] In October 28, the responsibilities on SAAL coordination were handed over to the municipal authorities, causing the extinction of the program in Porto.

centre and small openings on both the opposing façades (Fernandes, 2011, p. 477-81).

Yet, although they all share similarities, we can easily distinguish two different approaches in the eight low density housing projects constructed in Porto: in S. Victor (Álvaro Siza), Francos (Rolando Torgo), Lapa (Matos Ferreira e Beatriz Madureira) and Maceda (Alcino Soutinho) we can find a purist language and a rigid volumetry; on the contrary, Contumil (Célio Costa), Antas (Pedro Ramalho), Leal (Sergio Fernandez) and Chaves de Oliveira (Manuel Leça) share an hybrid language, where the typological and formal solutions are best suited to their specific urban environment and more agreeable to the taste of the populations.

Figure 3. SAAL Porto, dwellers' alterations in Maceda housing (Alcino Soutinho, 1975-76): addition of new volume (occupying areas intended for external private spaces) and changes in the colour and material on the exterior walls, which were initially painted in white (photo by the author, Jan. 2006).

The consequences are quite clear: while the hybrid solutions present themselves today with an image that does not differ much from the original construction (since they are less altered and because they assimilate the changes better), the situation of the purist cases is quite different, as the changes made by the dwellers strongly collide with the original intentions of the architects.

Maceda is a good case study of this phenomenon. The construction began as early as 1975, because '*the dwellers made practically no criticism to the organization of the houses*' (Bandeirinha, 2007, p. 167); but soon after the populations began to inhabit the dwellings, they started to introduce all sorts of changes, both in the interior and outside. Today, it is impossible to recognize the original traces of Alcino Soutinho design behind the great variety of volumetric extensions, walls lined with colorful tiles, new windows and altered doors…

In his experience in S. Victor, Álvaro Siza proposed a third way to the dilemma that the SAAL Program presented (the choice between the will to *learn from the people* and the necessity to *teach the people*); trying to avoid adopting any of these positions, which he considered simplistic, he proposed to direct all efforts towards the main objective: to resettle the populations where they live, sharing with them the will to create a physical world to serve a classless society (Siza, 1976, p. 14), but bearing in mind that it is '*unacceptable to dismiss the role of the architect, since collectivity was no substitute for specific and indispensable skills*' (Siza, 2000, p. 160).

3. Malagueira: *the idea is on the site*.

The lessons of the SAAL Program will be reflected in the Malagueira Residential District, initiated in 1977, in which a different attitude was justified by a distinct regional context, a different relation to the city and a greater territorial scope.

Malagueira was designed to dwell 1200 families[8] nearby Évora, in Alentejo, a '*region in southern Portugal, sparsely inhabited and characterized by large estates*' where '*local production progressed at a very slow pace, depending on manual techniques and materials*', circumstances that explain '*the excellent*

[8] It begins as part of the SAAL and, after 1976, becomes a cooperative housing program supported by the local administration of Évora.

state of conservation' of the city and of the landscape of the region (Siza, 2000, p. 162). The site was in the west expansion area of Évora, just outside the medieval walls (XIV century); it was a rural area previously occupied by farms (Malagueira, Malagueirinha and Sarrabulho) and illegal housing neighborhoods (Santa Maria and Senhora da Glória).

Siza's approach, like always, was based on a critical evaluation of all the components of the program and of the physical and cultural context of the site. His famous motto, '*a ideia está no sítio*' ('*the idea is in the site*', a notion that practically became a definition of his method and work), was first published in the text '*Notas sobre o trabalho em Évora'* ('*Notes on the work in Évora*'), written about this experience in Malagueira (Siza, 1979). There, he explained the intended relations with the existing site and the historic city, building a low rise expansion (with one or two story houses, instead of the towers foreseen by the early existing plan from the DGSU)[9] that allows the city's silhouette to remain unaltered. He also organized the majority of the new dwellings along an east-west axis that prolonged an important preexisting street, Salesianos street,[10] while taking in account other elements that also structure the preexisting territory[11] (Siza, 1979, p. 36-8). Furthermore, the design of the houses was conceived to provide a set of formal and typological variations around the traditional concept of patio-house, typical of the south of Portugal (due to its dry and warm climate and to several centuries of Islamic influence).

The scheme was very simple, based on the repetition of an identical parcel (12 x 8 meters), side by side and back to back, allowing most of the houses to share three walls with their neighbors (on both sides and on the back), for economic reasons. Siza proposed a great variety of solutions, resulting in thirty-five variations of a small number of different typologies (which can also evolve in time, from T1 to T5); this permitted a perfect relationship between uniformity

[9] DGSU: 'Direção-Geral da Sistematização Urbanística' (General Directorate of Urban Systematization).
[10] Salesianos street leads to one of the main doors of the medieval wall, '*Porta d'Alconchel*', and from there to the center of Évora, through Serpa Pinto street.
[11] Siza considered the existence of the above-mentioned farms and illegal housing neighborhoods, but also the course of a small stream, the existing vegetation, the ruins of two windmills and the paths traced in the rural soil by the spontaneous use of the local populations (Siza, 1998, p. 113).

and variety, history and present, architectural design and popular participation (Duarte, 2007).

The plan included a minimum of regulations, assuring some principles of uniformity in the whole, establishing the maximum volume of construction, the extent of the patios, the dimensions for fenestration and the height of the walls, but the multiple combinations of the various typologies (and their evolutionary possibilities) resulted in an apparently random variation of shape and rhythm, typical of the traditional Mediterranean tectonic culture.

Figure 4. Secondary street in Malagueira, showing the vegetation emerging from the patios and the rhythm created by the colour strips painted around the windows and doors, in the traditional way of Alentejo (photo by the author, Aug. 2008).

Malagueira was initially criticized by its purist design, which seemingly resulted in a soulless urban space (the people in Évora called it '*the pigsty*'). It was also considered incomplete and Siza was criticized for not being able to create a

finished image for the intervention (Siza, 1998). Today, it is evident that these considerations were premature.

The one thing we can be sure about Siza's plan in Évora is that it does not suffer from the '*eagerness to finish everything quickly*'; on the contrary, '*the initial premises for the design lay in attempting to delimit the territory with a series of interventions, leaving time and various initiatives to accomplish the task of completing the project, occupying the vacant spaces*' (Siza, 2000, p. 160).

Figure 5. Secondary street in the historic centre of Évora, (photo by the author, Aug. 2008).

Malagueira's detractors decreased, with the passage of time, as it was becoming increasingly obvious that it was planned to evolve in the long term. One of the signs that certifies that this evolution is occurring in the right direction is the way the neighborhood accommodates the transformations that the dwellers introduce in the houses. Today, we can find painted color strips around the windows and doors (in the traditional way of Alentejo), trees and flowers in the

patios (creating colorful spots of vegetation that emerge to the streets) and even some unplanned decorative elements (of dubious taste). Neither of this contributes to disqualify the global image; on the contrary, all this modifications offer this urban space a spontaneous component of popular taste that contributes to bring life to the whole.

When we visit Malagueira today, the rigid uniformity that caused the initial criticisms is no longer obvious. To an uninformed eye, it can appear that there was no architect involved in the genesis of this urban space; the personality of Siza, so strong in other works, is not easily recognizable (Moneo, 2004, p. 204). However, we should bear in mind that this is the result of the specific approach that Siza chose to this project; it is not the consequence of an unforeseen lucky chance, but the natural outcome of the conditions created by the architect and of the flexibility left in the plan, so that it could evolve with time, with the foreseen '*collaboration'* of the people '*by whom and for whom'* it was constructed (Távora, 1953).

The difference between the enlightened solution of Pessac, the attempted participation of some of the SAAL projects and the work of Siza in Évora is that, in this last case, time was an instrument of design: the plan was not a closed reality, neither were the participation processes. This is the main lesson of Malagueira: to create the conditions for the natural growth of an urban space, without trying to design every aspect of its evolution. To allow time to have an important part in the process of consolidation of its character.

Siza's quoted phrase '*the idea is in the site*' can be completely understood in the context of this work. The *site* is not limited to its physical area: it also encloses the immediate surroundings and a wide-ranging selection of aspects related to the region and its people, its history, its present culture and its foreseen future.

It is curious to notice that in 1979 (when Siza wrote the text where he first expressed the abovementioned idea), two essential books on architecture's phenomenology that emphasized this notion were also published: *Genius Loci*, by Norberg-Schultz, and *The Timeless Way of Building,* by Christopher Alexander.

We can find a particular proximity to our subject on the contents of the later:

> *There is a central quality which is the root criterion of life and spirit in a man, a town, a building, or a wilderness. This quality is objective and precise, but it cannot be named (…) when a building has this fire, then it becomes a part of nature (…) its parts are governed by the endless play of repetition and variety created in the presence of the fact that all things pass.*
>
> *(…) This quality in buildings and in towns cannot be made, but only generated, indirectly, by the ordinary actions of the people, just as a flower cannot be made, but only generated from the seed.* (Alexander, 1979, p. ix-xi).

This notion can be applied to Siza's work in Évora: he planted the seeds, '*specified the DNA*', allowing the ensemble to '*assume different forms in response to different local needs and circumstances'* (Mitchell, 2007).

Today, in Malagueira, it is not yet possible to see (or even foresee) the final results of this process. But it is possible to feel the birth of this *quality without a name.*

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FROM MOORE TO CALVINO.
The invisible cities of 20th Century planning

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Abstract

The contrast between the social and urban Utopia of Thomas Moore and the English Society of the sixteenth century can be used as an excuse to reflect on the concept of Utopia as an idea that is not possible to concretize when it is proposed but can be feasible some years later.
In the planning of 20th-Century New Towns we often find a strong component of Utopia due to the inadequacy to the social and/or technical conditions of the moment. The contrast between the ideal plan and the construct results (when there are any) is often strong, allowing us to consider the existing of an invisible city that is hidden behind the actual urban spaces; it can be a utopia waiting to be concretized or a dystopia caused by an unforeseen evolution of urban spaces and social dynamics.
In the 1972 work of Calvino, The Invisible Cities, we find a poetic discourse about the city that can be interpreted as a critical reflection on the ideas and results of the coeval urban practices.
In this paper, we intent to present an interpretation of some of the 20th Century urban ideas based on the reading of the eleven themes of this book. The links that can be established between the various Invisible Cities (moving and combining them, like the pieces of a chess game) inspire the formulation of several assumptions that can be related to the images, forms and ideas of some Archetypes and Utopias of 20th Century planning: Corbusier's Ville Radieuse, Mies van der Rohe's plan for the IIT in Chicago, Minoru Yamasaki's Pruitt-Igoe housing complex, Robert Venturi's (et al.) studies on Las Vegas and Levittown, the images produced by Archigram and the theoretical work of Jane Jacobs, Aldo Rossi, Kevin Lynch, Rem Koolhaas, François Ascher and Joel Garreau.

Keywords: Calvino, Utopia, Invisible, Cities, Urban

1. Urban Utopias, from Moore to Calvino.

The word *Utopia* was invented by Thomas Moore,[1] to use in the title of his 1516 book; since then, the contrast between the social and urban ideal presented by Thomas Moore and the English society of the sixteenth century has been responsible for the definition of the concept of Utopia, as an idea that is not possible to concretize when it is proposed but can be feasible some years later (Musil, 2008).

The book *Utopia* presents a conversation between the author and a Portuguese sailor named Raphael Hythloday, an adventurer who traveled around the world. Moore highlights Raphael's description of an island (named *Utopia*) where society is organized and ruled in an equalitarian way, with assumed influence of Plato's writings in *Republic* (Moore, 1516, p. 54);[2] its social organization was clearly utopian (for the political context of sixteenth century) and was correlated to an ideal urban organization:

> There are fifty-four cities on the island, all large and well-built (…). The streets are very convenient for all carriage, and are well sheltered from the winds. Their buildings are good, and are so uniform that a whole side of a street looks like one house. The streets are twenty feet broad; there lie gardens behind all their houses (Moore, 1516, p. 63-69).

This fragment[3] of the description of Utopia's cities is sufficient to illustrate Moore's ideas on urban planning: imbued with Renaissance principles and

[1] The Oxford Dictionaries (http://www.oxforddictionaries.com) presents Utopia as the junction of the Greek expressions *ou* (not) and *topos* (place), but, according to Lewis Mumford (2007), it can also derive from the junction of the Greek expressions *eu* (good) and *topos*. So, it can be either translated as the *non-place* or the *good place*.

[2] The defence of this social Utopia is not completely assumed in Moore's discourse, who finishes the book expressing that he cannot fully agree to everything Raphael Hythloday has reported. However, it is obvious that this careful position is motivated by fear of the repressive regime of the sixteenth century English Society, the same caution that justified the fact that the book was never published in England before Moore's death; nevertheless, he was executed in 1535, by order of king Henry VIII, because he refused to take an oath recognizing the legitimacy of the new royal marriage (ACKROYD, 1998).

[3] For a more comprehensive description see the chapter 'Of their towns, particularly of Amaurot' (Moore, 1515, p. 67-70).

possibly influenced by the writings of Vitruvius and Alberti,[4] he believed in the possibility of an ideal and universal plan, considered as guarantee for the success of an urban space.

We can establish a relation between Moore's *Utopia* and Calvino's approach in *Invisible Cities*, based in the similar number of cities referred by both authors (fifty-four in Utopia, fifty-five in Calvino's book), that can hardly be assumed as a coincidence. Furthermore, Calvino's revisits the tales of the Venetian adventurer Marco Polo (1254-1324) with an *utopian* and anachronistic[5] discourse that clearly departs from the original book, *Il Milione*[6]; it is obvious that the voyages of the Venetian are just an excuse to present a poetic discourse about the city, that contains a critical reflection on the ideas and results of the twentieth century urban practices. It is not a description of a utopian perfect society based in a unique urban ideal, it is a dissertation on the complexity of urban realities.

The book consists of fifty-five narratives of different cities, interposed with dialogues between the Venetian merchant and Kublai Khan (Mongolian emperor, grandson of Genghis Khan). The cities are numbered from one to five and grouped in eleven themes: memory, desire, signs, thin, trading, eyes, name, dead, sky, continuous and hidden. They are organized in nine chapters: the first and last contain ten cities and the other seven include five cities each, from five different themes.

This organization seemingly chaotic hides a complex organization (see figure 1);[7] on *Six Memos for the Next Millennium*[8] Calvino emphasizes the relations

[4] When writing Utopia, Moore could only know the treaties published before 1516, mainly Alberti's *De re aedificatoria libri decem* (Florence, 1485) and the editions of Vitruvius *De architectura libri decem* translated by Giovanni Sulpicio (Rome, 1486) and Fra Giovanni Giocondo da Verona (Venice, 1511); it is not likely that he knew the manuscripts of Antonio Averlino (Filarete), *Trattato di architettura* (1461-64), or Francesco di Giorgio Martini, *Architettura civile e militare* (1470-90).

[5] In some of the Invisible Cities, Calvino speaks of planes, airports, skyscrapers, refrigerators, radio, light bulbs, underground trains, etc.

[6] *Il Milione*, the book narrated by Marco Polo (1299), was one of most popular works published before the invention of Guttenberg's press.

[7] The table on figure 1 resumes the analysis of the compositional structure of the book *The Invisible Cities* that can be found, with more depth, in *Towards an imaginary cartography* (Silva, 2013).

[8] *Six Memos for the Next Millennium* (Calvino, 1988) is a posthumous recollection of the unpublished texts from a series of conferences that Calvino had scheduled at the Harvard University, before his death (in 1985).

between *The Invisible Cities* and a chess game, recalling one of the dialogues between Marco Polo and Kublai Khan (Calvino, 1988, p. 89).

Order number	1	2	3	4	5
Memory	Diomira I	Isidora I	Zaira I	Zora I	Maurília II
Desire	Doroteia I	Anastásia I	Despina I	Fedora II	Zobaida III
Signs	Tamara I	Zirma I	Zoé II	Hipácia III	Olívia IV
Thin	Isaura I	Zenóbia II	Armilla III	Sofrónia IV	Octávia V
Trading	Eufémia II	Cloé III	Eutrópia IV	Ersília V	Esmeraldina VI
Eyes	Valdrada III	Zemrude IV	Bauci V	Fílias VI	Moriana VII
Name	Aglaura IV	Leandra V	Pirra VI	Clarice VII	Irene VIII
Dead	Melânia V	Adelma VI	Eusápia VII	Árgia VIII	Laudomia IX
Sky	Eudóxia VI	Bersabeia VII	Tecla VIII	Períncia IX	Andria IX
Continuous	Leónia VII	Trude VIII	Procópia IX	Cecília IX	Pentesileia IX
Hidden	Olinda VIII	Raissa IX	Marozia IX	Teodora IX	Berenice IX

Figure 1. Associating the cities by theme and order number (1 to 5, on each theme), we notice that the diagonals correspond to the chapters (I to IX) of the book (Silva, 2013).

This idea of a chessboard is present in several parts of *The Invisible Cities* (p. 21, 64, 121-122, 131) and seems essential to decipher the hidden structure of this book: '*Kublai reflected on the invisible order that sustains cities*, (…) *he thought he was on the verge of discovering a coherent, harmonious system underlying the infinite deformities and discords, but no model could stand up to the comparison with the game of chess'* (p. 122).

To understand this analogy, we must remember that Calvino has a passion for numerology.[9] A chessboard has sixty-four squares and *Invisible Cities* has seventy-three parts, if we add the fifty-five cities to the eighteen dialogues between Polo

[9] See his discourse on the geometric composition of 'La vie mode d'emploi', from Georges Perec (Calvino, 1988, p. 142-3), which can be important to decode the compositional structure of *The Invisible Cities* (Silva, 2013).

and Kublai Khan, present in all the nine chapters (both at the beginning and at the end). However, if we consider that these eighteen dialogues can be grouped in pairs, the total number of parts of the book equals 64. Furthermore, as in a chess board, the pieces are alternately black and white: Calvino combines a discourse on positive factors (values and situations) with its opposite, a difference that may occur in the contrast between the discourse on different cities or in the duplicity and ambiguity presented in each one.

2. The Invisible Cities as an urban idea(l).

In *The Invisible Cities* there is a recurrent discourse that relates the narrative of Marco Polo to Venice, his hometown and the starting point of his journey.

Throughout the book, we can find references to the imaginary of this Italian city: Anastasia (*Desire*, 2, p. 12)[10] is '*a city with concentric canals*', Esmeralda (*Trading*, 5, p. 88) is a '*city of water*' where '*a network of canals and a network of streets span and intersect each other*' and in Phyllis (Fílias, *Eyes*, 4, p. 90) '*you rejoice in observing all the bridges over the canals, each different from the others*'. In these examples the formal allusions are quite clear, but there are many more where the character, the history and the vitality of Venice comes to mind.

These recurrent references are clearly assumed in the dialogues between Polo and Kublai Khan: "Every time I describe a city I am saying something about Venice." (…) "To distinguish the other cities' qualities, I must speak of a first city that remains implicit. For me it is Venice." (p. 86)

[10] To reference the various quotations from "The Invisible Cities" (Calvino, 1972) we indicated the theme (in this case, '*Desire*'), the number of the city and the number of the page of the consulted English translation. When the original name of the cities is altered in the translation, we also present the original name, like in Phyllis (Fílias, Eyes, 4). In the quotation of the dialogues between Marco Polo and Kublai Khan, we only specified the page number.

However, this is not true for the whole book: in many of Polo's narratives, the memories of Venice can be implicit,[11] but the city described presents a very different kind of images and/or ideas.

Calvino presents us with a holistic discourse on the coeval urban realities and problems, in the way an author can perceive them in the early seventies of the last century (but with a clear intuition of their future evolution). This is particularly clear in four of the eleven themes of the book: '*Cities and signs*', '*Thin cities*', '*Cities and the sky*' and '*Continuous cities*'.

The five cities of the theme '*signs*' address an important issue of urban space: semiotics. This was a very fashionable subject at the time: the parallel publication (in 1966) of Aldo Rossi's typological approach in *The Architecture of the City* and Robert Venturi's *Complexity and Contradiction in Architecture*, that presents a clear emphasis on the relationship between language, form and meaning, dominated the architectural/urban theoretical discourse in the end of the sixties,[12] and paved the way for Venturi's later reflection on symbolism *in Learning from Las Vegas* (1972).

Published in the same year, '*The Invisible Cities*' presents the same concern with the relation between signs and meaning. In Tamara, the '*eye does not see things but images of things that mean other things'*. If a building *'has no signboard or figure, its very form and the position it occupies in the city's order suffice to indicate its function*' (Signs, 1, p. 13-14). We can find in this description the famous dichotomy 'Duck' / 'Decorated Shed' (Venturi, 1972) but also a classical idea: the order of the city communicates its functional hierarchy.

In Zirma (Signs, 2, p. 19) this discourse on semiotics is reinforced, but now the signs are perceived in the movement and activity of '*streets of shops where tattoos are drawn on sailors' skin'* and in *'underground trains crammed with*

[11] '*Memory's images, once they are fixed in words, are erased* (…) *Perhaps I am afraid of losing Venice all at once, if I speak of it. Or perhaps, speaking of other cities, I have already lost it, little by little.*' (p. 87)

[12] The emergence of this theme on urban studies is often related to Noam Chomsky linguistics studies; to understand the variety of approaches (Quincy, Castells, Bohigas, Rossi, Bachelard, De Fusco, Eco, etc.) that can be find in this field, we suggest 'Teoria das tipologias como estruturas generativas no marco da produção urbana' (Portas, 1972).

obese women'. Here, Calvino's speech bifurcates into two complementary conclusions; '*The city is redundant: it repeats itself so that something will stick in the mind*' and '*Memory is redundant: it repeats signs so that the city can begin to exist*.' The association of these two different notions implies that the cognitive perception of the city can result from the redundancies of signals, behaviors and memory.

An opposite view is presented in Zoé (Signs, 3, p. 34), the city where the function does not affect the form and the architectural language: in '*every point of this city you can, in turn, sleep, make tools, cook, accumulate gold, disrobe, reign, sell, question oracles*.' This description brings to mind Charles Jencks' criticism of the uniform language of Mies van der Rohe in the IIT buildings (Chicago, 1962)[13] or the ironic statement on standardization that Jacques Tati presents in the movie Playtime (1967), creating a modernized Paris made of 'Miesien' steel and glass buildings. Like Zoé, these are places of '*indivisible existence*' that raise a crucial question: '*why, then, does the city exist?*' (Signs, 3, p. 34).

Otherwise, in Hipácia (Signs, 4, p. 48), Polo was confronted with a city where signs form a language, but not the one he knows. Finally, in Olívia (Signs, 5, p. 61), he concludes that '*the city must never be confused with the words that describe it*'. This opposition between the discourse on the city and its physical reality is the theme presented in the five chapters of *Cities and names*; it's a matter of identity, that in Olívia leads us to conclude that lies are not '*in words*', but '*in things*'. This notion takes us back to Las Vegas, but now to Frampton's (1985, p. 291) review of Venturi's approach: '*the ruthless kitsch of Las Vegas*' is, in fact, '*an exemplary mask for the concealment of the brutality of our own environment*'.

This ambivalent discourse is a recurrent feature that Calvino presents throughout the whole book. In the narratives of the '*thin cities*', this ambivalence is redirected to the relations between form and function, and the discourse

[13] Jencks (1973, p. 95) recalls that the chapel of the IIT had to be identified with a written sign, to distinguished it from the other buildings.

expresses a fascination for the apparent fragility of urban forms that present unusual solutions on structure and/or infrastructure.

Isaura, '*city of the thousand wells*', is described as an agglomeration of moving mechanisms and thin structures: '*the buckets that rise, suspended from a cable,* (…) *the revolving pulleys* (…) *the columns of water, the vertical pipes, the plungers, the drains,* (…) *the weathercocks that surmount the airy scaffoldings of Isaura*' (Thin, 1, p. 20). In the description of Zenóbia, city '*that stands on high pilings'*, we find the same idea of fragility: '*many platforms and balconies placed on stilts at various heights, crossing one another, linked by ladders and hanging sidewalks*' (Thin, 2, p. 35). But in this city, like in Baucis (Bauci, Eyes, 3, p. 77), where the '*slender stilts that rise from the ground at a great distance from one another and are lost above the clouds support the city*', it is not clear what are the causes of the peculiar form described: '*No one remembers what need or command or desire drove Zenobia's founders to give their city this form*'.

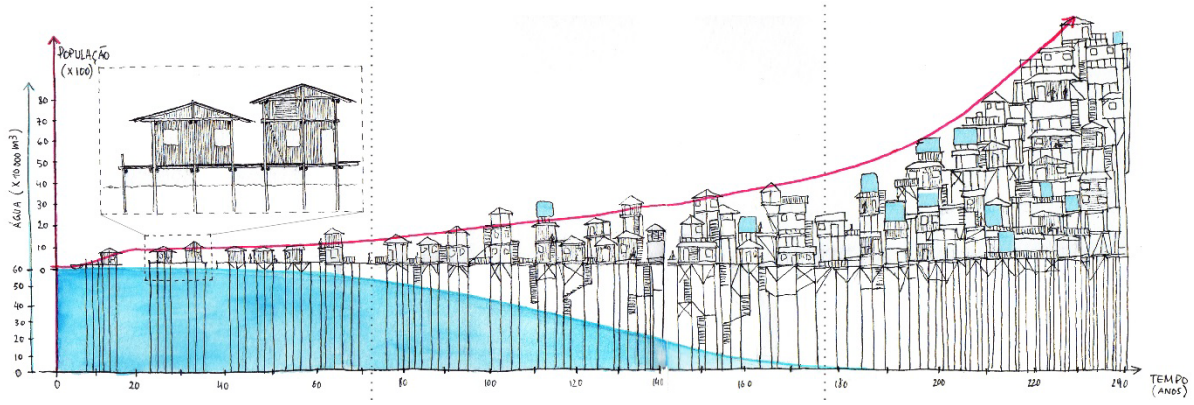

Figure 2. Zenóbia, hypothetical illustration of its evolution in time: as the population increases, the water diminishes (Acosta, 2013).

The same can be said about Armilla (Thin, 3, p. 35), mysterious city that '*has no walls, no ceilings, no floors: it has nothing that makes it seem a city, except the water pipes that rise vertically where the houses should*'; here, again, nobody knows if it '*is like this because it is unfinished or because it has been*

demolished, whether the cause is some enchantment or only a whim'. Also in Octavia (Thin, 5, p. 75), '*spider-web city*', the reasons behind the form are not presented and the idea of fragility is dominant in Polo's description: '*Suspended over the abyss* (…) *the net will last only so long'*.

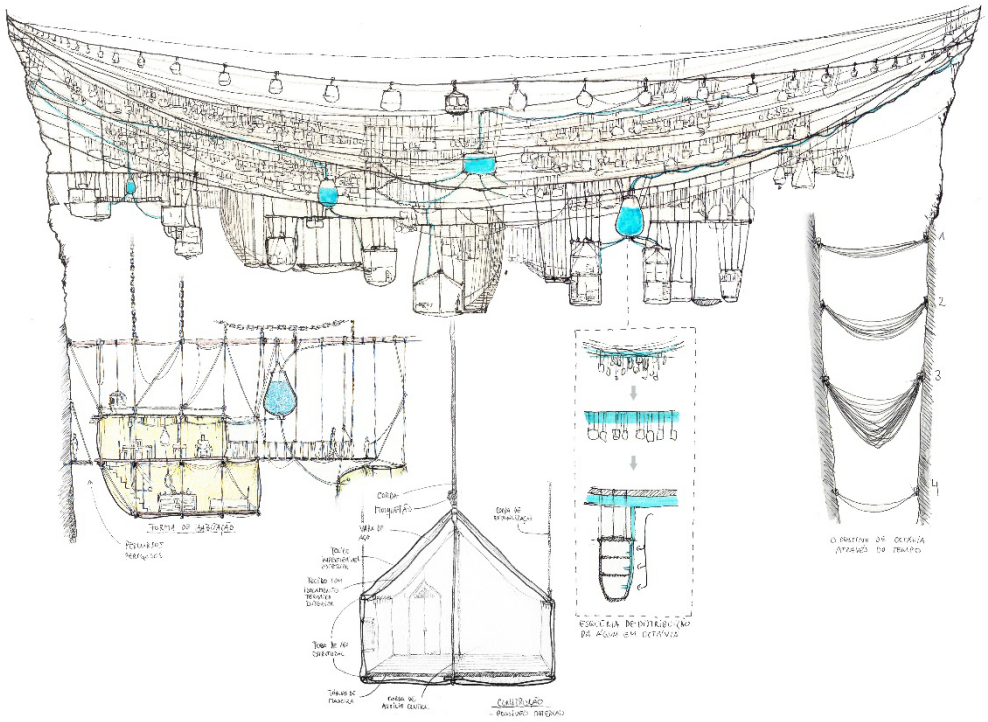

Figure 3. Octavia, hypothetical illustration (Acosta, 2013).

Finally, in Sophronia (Sofrónia, Thin, 4, p. 63), the ambivalence between form and function is tested to its limits. The '*half-city*' made '*of stone and marble and cement*' is temporary: '*when the period of its sojourn is over, they uproot it, dismantle it,* (…) *transplanting it to the vacant lots of another half-city*'; on the contrary, the '*half-city*' formed by '*the shooting-galleries and the carousels*' is permanent, and its inhabitants wait the return of the other half, so that a '*complete life can begin again*'.

This fascination for the aesthetics of fragility, complexity and motion can be related to images created by 60's utopian visions of the city, which seem

particularly adequate to illustrate '*Thin cities*': the work of the Japanese Metabolists (Kurokawa, Isozaki, Tange, Kikutake, etc.) and, mainly, the designs of the English group Archigram, whose peculiar ludic approach on this aesthetics resulted in unusual relations between the architecture and the city, assuming structure and infrastructure as main characters of the form (Banham, 1978), like in the Fun Palace (Cedric Price), the Walking City (Ron Herron and Brian Harvey) or the Plug-In City (Peter Cook).

In contrast, the discourse presented in *The Cities and the Sky* seems to be an allegory on the impossibility of perfection in urban planning. Eudóxia (Sky, 1, p. 96-7), a city that '*spreads out shapelessly, with crooked streets, houses that crumble one upon the other amid clouds of dust, fires, screams in the darkness*', is '*the true map of the universe*' while its representation (a '*carpet, laid out in symmetrical motives whose patterns are repeated along straight and circular lines*') is just '*an approximate reflection, like every human creation*'. This idea is reinforced in Thekla (Tecla, Sky, 3, p. 127), the city in permanent construction, following a blueprint written in the starry sky, and in Andria (Sky, 5, p. 150), where the inhabitants are '*convinced that every innovation in the city influences the sky's pattern'* and plan the changes to their city calculating *'the risks and advantages for themselves and for the city and for all worlds.'*

The duality between the immobility of the plan (ideal representation restricted by human limitations) and the permanent changes in the organism of the city is reinforced with the example of the perfect plan of Perinthia:

> (…) *the astronomers established the place and the day according to the position of the stars; they drew the intersecting lines of the decumanus and the card* (…)*. They divided the map according to the twelve houses of the zodiac* (…)*. Perinthia - they guaranteed - would reflect the harmony of the firmament; nature's reason and the gods' benevolence would shape the inhabitants' destinies.* (Períncia, Sky, 4, p. 144)

However, all this efforts did not avoid the birth of succeeding generations of '*cripples, dwarfs, hunchbacks, obese men, bearded women'* and *'children with three heads or with six legs'*.

The description of Perinthia's fate evokes the results of many urban experiences, where the strong belief in the reliability of the plan was later denied by the evaluation of the results. One well-known example of these failures is the Pruitt-Igoe housing complex in St. Louis, design by the '*distinguished architect Minoru Yamasaki*' and '*subject of a laudatory article in the magazine* Architectural Forum' (Hall, 1988): completed in 1956, it was imploded in 1972 and became a symbol of failure, the failure of Athens Charter's urban ideas in the second half of the twentieth century. This '*rigid process of planned production*' (Tafuri, 1976) often failed to create good urban environments, mainly because social problems are not an architectural issue, they are a planning matter; thus, it is more important to try to understand the real necessities of the people than to draw blueprint that *reflects the harmony of the firmament*.

But if the results of well-intended planning can be negative, what is the consequence of having no plan at all?

In the *Continuous Cities*, Calvino seems to address this question. Leonia (Continuous, 1, p. 114), archetype of the contemporaneous city of the economic globalization, lives divided between '*the enjoyment of new and different things*' and '*the joy of expelling, discarding, cleansing itself of a recurrent impurity*'; because it shares this characteristics with every other city, '*the whole world, beyond Leonia's boundaries, is covered by craters of rubbish, each surrounding a metropolis in constant eruption*'. In Procópia (Continuous, 3, p. 146) we find the same discourse on incontrollable growth, but now directed to the increase of the population: each year, as soon as Marco Polo arrives in the same hotel room, he can count more faces in the landscape he sees through the window, until the day when '*even the sky has disappeared*.'

The other three cities of this theme reflect on the incontrollable and unplanned growth of urban space. Trude (Continuous, 2, p. 128) is a city with no identity, where nothing is new: the '*world is covered by a sole Trude which does not*

begin and does not end'; the cities are all the same, *'only the name of the airport changes*'. In Cecília (Continuous, 4, p. 152) the growth of the city ('*Cecilia is everywhere'*) occupies what used to be the meadows where a shepherd used to herd his goats. Finally, Penthesilea (Pentesileia, Continuous, 5, p. 162) is a continuous suburb: we '*advance for hours and it is not clear to you whether you are already in the city's midst or still outside it*'; we can't even understand if *'there exists a Penthesilea the visitor can recognize and remember, or whether Penthesilea is only the outskirts of itself*.'

Reading *Continuous Cities* is slightly disturbing because we tend to find possible allusions to many contemporary discourses on the city, although knowing that the book was published in the early seventies. His visionary discourse makes us admire Calvino's capacity of foresight: Leonia is a Metapolis, a product of the third modern urban revolution (Ascher, 1995); Trude is a Generic City (Koolhaas, 1995); Cecilia and Penthesilea can either be related to the American Edge City (Garreau, 1988) or to the diffuse landscape characteristic of the valley of the river Ave, in Portugal (Portas, 1986). In all these spaces, reading Calvino's meaning between the lines, we find a concept that is related to all the others: Marc Augé's (1992) *non-place*,[14] a space that cannot be defined in terms of identity, relationships and history. Clearly, this is not what the author considers urbanity; it is the opposite of a city.

Calvino's urban idea(l) is portrayed in other parts of this book: it is made of many fragments and mingles different topics, sometimes by analogy, sometimes by contrast, sometimes with an ambivalence that expresses opposite views on each subject.

Both in *Cities and Memory* and in *Cities and Names*, Calvino speaks us of identity, nostalgia and illusion: the city '*does not tell its past, but contains it like the lines of a hand, written in the corners of the streets, the gratings of the windows, the banisters of the steps*' (Zaira, *Memory*, 3, p. 11); but if we try to preserve it unchanged, and force it '*to remain motionless* (…) *in order to be more easily remembered*', it will be destroyed (Zora, *Memory*, 4, p. 16). Divided

[14] Non-place is one of the possible meanings of the word Utopia (see note 1).

between nostalgia and the needs of the modern times, we have to remember that '*sometimes different cities follow one another on the same site and under the same name, born and dying without knowing one another*' (Maurília, *Memory*, 5, p. 30).

In the *Cities and Desire* the approach is similar, but now Polo's speech wanders on the relation between urban spaces, material possessions and lust:

> (…) while the description of Anastasia awakens desires one at a time only to force you to stifle them, (…) one morning your desires waken all at once and surround you (…) you can do nothing but inhabit this desire and be content. (Anastasia, *Desire*, 2, p. 12).

In *Trading Cities*, Calvino's ideal vision of the city is divided between the possibilities of change (opening new opportunities) and the prevalence of the need to socialize. In Euphemia (*Trading*, 1, p. 12) the main subject is human relations and communication (social trading): "*what drives men to travel up rivers and cross deserts to come here is not only the exchange of wares*'; at night, '*by the fires all around the market*', the merchants share (and trade) their tales.

The other side of urban communication is presented in Chloe, a city where '*people who move through the streets are all strangers*';[15] but this unfamiliar condition does not limit the imagination: '*when some people happen to find themselves together (…) meetings, seductions, copulations, orgies are consummated among them without a word exchanged, without a finger touching anything, almost without an eye raised*' (Cloé, *Trading*, 2, p. 51). On the contrary, in Ersilia (*Trading*, 4, p. 76), '*relationship of blood, of trade, authority, agency*' are emphasized and symbolized by strings that produce a web, the only thing remaining when the inhabitants leave the city; like Ersilia, Eutropia (*Trading*, 3, p. 64) is recurrently abandoned, so the inhabitants can find a

[15] This description resembles Jane Jacobs's definition of a city: "...cities are, by definition, full of strangers. (...) The bedrock attribute of a successful city district is that a person must feel personally safe and secure on the street among all these strangers." (Jacobs, 1961, p.39-40).

different life, with '*a new job, a different wife,* (…) *another landscape* (…) *different pastimes, friends, gossip*'.

In *Cities and the Dead*, we find a similar discourse on social trading, but now in an approach that considers the passing of time, the cultural inheritance of the urban societies, the presence of the legacy of our antecessors in our present occupations (Eusápia, *Dead*, 3, p. 109), social habits (Melania, *Dead*, 1, p. 80) and even in the physiognomy of the people we see (Adelma, *Dead*, 2, p. 94).

Otherwise, in the *Cities and the Eyes*, Calvino reflects on the different ways we can see the same city, on the cognitive perception of urban space (Lynch, 1960): they can compete with their own reflection, like Venice (Valdrada, *Eyes*, 1, p. 53), depend on the '*mood of the beholder*' (Zemrude, *Eyes*, 4, p. 66) or '*elude the gaze of all, except the man who catches them by surprise*' (Phyllis, *Eyes*, 4, p. 90).

Finally, in the '*Hidden Cities*', we find a recurrent tale of the birth of a new city within a preexisting one: Olinda (*Hidden*, 1, p. 129) '*grows in concentric circles, like tree trunks which each year add one more ring*'; Raissa (*Hidden*, 2, p. 148) is an '*unhappy city*' that '*contains a happy city unaware of its own existence*'; finally, Berenice (*Hidden*, 5, p. 161) '*is a temporal succession of different cities, alternately just and unjust*.'

Hidden can be seen as a synonym of *Invisible*; thus, this last theme is the perfect corollary for the whole book: this idea of permanent renewal, of continual vitality, and the opposition between the need for development and the importance of the past exists in almost every page. It embodies the dilemma of Marco Polo, divided between the memory of Venice and the fascination for all the novelty he finds on his journey. But it is also the problem of the modern planner, throughout the twentieth century: from the modern plans influenced by the Athens Charter to the more recent experiments of rebuilding the city within the city in the *third generation plans* (Secchi, 1985) or in the organization of international events (Expos, Olympics, etc.), architects and urban planners are always facing this opposition.

But what is especially interesting in Calvino's idea(l) of city, what makes his approach a valid contribution to this field, is the importance granted to the ambivalence created by the different human visions, concepts and interactions: identity, nostalgia, seduction, fear, anger, illusion, delusion, envy, greed, lust and pride are vital variables, that can transform an ideal plan (with blueprints that *reflect the harmony of the firmament*) into an urban failure.

Acknowledgments

The idea of writing this paper results directly from the experience of supervision of the Master Thesis *Towards an imaginary cartography. Defragmenting "The Invisible Cities" from Italo Calvino*, developed by Ana Carina Silva in the School of Architecture of University of Minho. Some of the images presented were included in another Master Thesis (unrelated to the first one) from the same School, presented by Ricardo Acosta (and supervised by Marta Labastida), who kindly permitted their use in this paper.

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LAN-PLAN
Central Lancashire New Town 1965-1986

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Abstract

From 1965 Lancashire, in the North West of England, became the focus of a major renewal scheme: the creation of a new 'super-city'. The last and largest New Town designated under the 1965 Act, the proposed city, called Central Lancashire New Town (CLNT), differed from other New Towns. Although influenced by the ideals and example of Garden City model, its master plan was based on the region's existing urban poly-centricity that had evolved during the Industrial Revolution. By unifying and supplementing existing townships it aimed to generate prosperity on a sub-regional scale using the New Towns Act, rather than creating a single new urban development. Although only part-realised the scheme became a focus for Lancashire's industrial and urban revival, rejuvenating many existing communities and providing multiple municipal modern city-scale civic buildings in Lancashire's towns.

The paper will outline the origins, intentions and achievements of CLNT including examples of its modern and often brutalist architectural legacy. As urban design precedent, it is pertinent to the Town and Country Planning Association's current national campaign to continue the work of the Garden City movement as well as regional debates concerning Lancashire's future urban redevelopment, particularly Preston (the proposed sub-regional centre of CLNT), which was granted City status in 2002.

Keywords: Central Lancashire New Town; Leyland; Preston; Chorley; Garden-City.

In September 2013 Preston Bus Station (figure 1) was granted grade II listed status after a thirteen-year campaign to save it from demolition (Klettner, 2013). Preston City Council (2012) have argued that the building was no longer viable as it was twice the size currently needed by the city and too expensive to refurbish and maintain. The largest in the UK and second largest in Western Europe, the bus station had been designed by the Building Design Partnership (1959-70) to serve a new city called Central Lancashire New Town (CLNT) that had been proposed for the north west of England during the 1960s under the New Towns Act (1965). If realised the city would have been the third largest in

the region, after Manchester and Liverpool, and its master-plan, which was being developed simultaneously to the bus station's design, could have accommodated a predicted population increase from 253,000 people in 1966 to 503,000 in 1991 over 51,460 acres. Designated in 1970 CLNT is significant because it was the last and largest of the third generation new towns proposed in Britain between 1961 and 1970 and it demonstrated an unprecedented application of the Act. Over a period of thirty years the strategy, configuration and scale of a New Town for central Lancashire changed leaving an interesting architectural legacy dispersed across the region and, as in the case of Preston Bus Station, a contemporary debate concerning the future of its city-scale buildings.

Figure 1. Preston Bus Station, Lancashire, designed by the Building Design Partnership, 1959-70, (the author).

Pioneer Ebenezer Howard (1850-1928) conceived the British new town movement during the nineteenth century when in 1898 he published his proposals for a new city form in *Tomorrow: A Peaceful Path to Real Reform.* Howard had been critical of squalid living conditions, disorganised growth and congestion caused by the rapid expansion of large towns during the industrial revolution, particularly London. By proposing an alternative city type based on

an urban pattern, Howard attempted to control urban development. He promoted the advantages of living in close proximity to both town and country and employed four key principles – the lower and upper limitation of population numbers and area; growth by colonisation; variety and sufficiency of economic opportunities and social advantages; and control of land in the public's interest. A permanent green belt of mainly agricultural land restricted city growth and guaranteed the extents of urban settlement. As well as distributing the concentration of people and workplaces in urban areas, Howard's scheme boosted densities of smaller towns and reinstated vitality and services to rural regions that had declining populations.

Adoption of Howard's ideas and recognition as a national policy through the establishment of Britain's first New Town's Act of 1946 was slow. Howard had established the Garden City Association in 1899 (now the Town and Country Planning Association), a small but pro-active group that promoted the Garden City idea through its journal and arranged meetings and conferences across the country. Four years later he set up the First Garden City Company and piloted his proposals through the design and build of the unprecedented experimental town of Letchworth (1903-4), Hertfordshire, 35 miles from London (Osborn et al, 1969, 66). Although Howards' ideas gained intrigue, they remained uncopied for decades. The second demonstration of his concept at Welwyn Garden City (1919-20) was more successful and, probably due to an increased demand for new housing during the inter-War years, had gained international recognition by the 1930s due to its successful industrial growth, social liveliness and outstanding quality of design.

In 1938 Neville Chamberlain (1869-1940), the new British Prime Minister, assigned a Royal Commission chaired by Sir Anderson Barlow (1868-1951) to advise on urban densities and the distribution of population and industry. Published in 1940, the *Barlow Report* reiterated the problem of large towns and recommended 'planned decentralization'. It was not until after the Second World-War that the principle of population displacement to facilitate the redevelopment of Britain reignited interest in New Towns. A New Towns Committee, established in 1945, considered their delivery and configuration and

the passing of two revolutionary Acts – the New Towns Act 1946 and the Town and Country Planning Act 1947, followed. Welwyn became part of the first generation of New Towns when a government appointed Development Corporation adopted it under the New Towns Act in 1948. The need for 20 new towns had been identified and between 1947 and 1950 fourteen had been started – twelve in England (eight to relieve London) and two in Scotland. After 1961 came a second wave of new towns and by 1968 eight more were in progress (six in England and two in Scotland) (figure 2). During the late 1960s changes to the New Towns Act allowed Development Corporations to co-operate with local councils to plan major expansions of existing towns to create regional or sub-regional centres and undertake urban development over extensive areas already containing a number of small towns and villages not suitable for individual expansion. These were not new towns but large-scale town expansions.

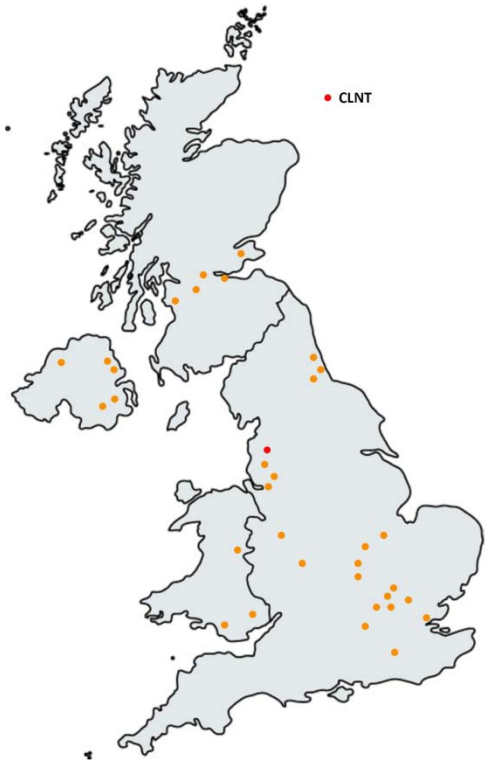

Figure 2. Proposed and constructed New Towns, 1965 (the author).

During the 1960s, Lancashire achieved three New Towns - Skelmersdale (1961), Runcorn (1964) and Warrington (1968) to address population overspill from Liverpool and Manchester. In 1965, Richard Crossman, then Minister of Housing and Local Government, commissioned Robert Matthew Johnson Marshall and Partners (RMJM) to undertake preliminary studies for a fourth New Town at central Lancashire. Entitled *Study for a City,* the report marks a long evolutionary process and period of consultation to determine the location and form of the New Town as well as its impact on adjacent settlements. Defined by agricultural belts to the north and west, hills and moors to the east and Wigan's coalfield to the south, the geographical area considered for the designation area included Preston, Leyland and Chorley. In 1965 Preston was an administrative and communications centre serving a wide hinterland with its port, service industry and retail facilities. Chorley was a compact small self-sufficient market town with parkland to the West and Rivington Reservoirs and Anglezance Moors to the east. Leyland had experienced rapid incoherent growth as an important flourishing manufacturing and industrial town. These towns had a combined population of 250,000 and were in close proximity to improved north/ south main infrastructure routes.

Two decades earlier Lancashire County Council had identified the need for New Towns to solve the region's immense housing problems. In 1949, the Minister of Town and Country Planning had asked Lancashire County Council to determine locations for New Towns and town extensions to accommodate 47,500 people from congested county boroughs (*The Manchester Guardian,* 14 November, 1950, 5). To be viable sites needed to be within travelling distance of Merseyside and Manchester, pose few constructional difficulties and be of sufficient distance from existing urban areas to ensure economic and geographic independence. In addition Preston also needed to address its local housing shortages. *Towards a Prouder Preston,* a publication by the County Borough of Preston's Town Planning and Development Committee (1946, 6), reported that half the town's housing had been built in the last 60 to 100 years; one-sixth

needed to be demolished as part of slum clearances and 750 new dwellings would be needed over the next 20 years.

A post-war advisory plan, *A Preliminary Plan for Lancashire* (Brown, 1951) was prepared. Initially this was not the official mandatory Statutory Development Plan, it was a progress report designed to identify the character and scale of problems that the development plan must solve, such as population redistribution, industrial development, housing needs and conservation of agricultural land. Its foreword, written in March 1950 by the County Councillor A. E. Higham, Chairman of the County Planning and Development Committee, described the current conditions,

> anyone who lives in Lancashire must realise the extent to which a once lovely countryside has been largely transformed into a densely populated industrial area. That in itself was probably inevitable, but the way in which it has occurred is in the most cases a sad story of untidy, unhealthy, overcrowded and unplanned development, both in regard to housing and industry. (Brown, 1951, vi)

In March 1950 a review of the interim edition of the preliminary plan published in the *Manchester Guardian* reported that the number of people from devastated industrial towns and cities, in particular from Manchester and Liverpool, who needed to be rehoused due to post-war housing shortages and slum clearances, had increased to 639,000 (3 March, 8). Three potential New Town locations to accommodate 132,800 people were identified - Parbold, Garstang and Leyland, plus significant expansions to eight towns and minor expansions to forty areas in the region, but the New Towns were omitted from the approved Lancashire County Council's development plan of 1956 (NTC/4/1/82, 1968).

A review of the Lancashire County Development Plan (Lancashire Planning Department, 1962) revisited the idea of a New Town for central Lancashire. It again identified Leyland as a possible location for large-scale development due to its proximity to the new M6 motorway and high levels of employment in the

motor manufacturing industry, primarily at British Leyland. In 1964, the County Planning Officer produced a 'Preliminary Technical Report on the Future of Central mid-Lancashire' that focused on the Chorley-Leyland area (Coates). This outlined a vision to create a 'new and contemporary urban environment as the modern alternative to the traditional suburban relief from city frustrations' and claimed that areas already containing well-established towns and cities could accommodate substantial population increase. Identifying Chorley, Leyland and Preston's suburbs as focal points for expansion it stated that a large number of people could live together without the disadvantages of some cities and that new development could provide the catalyst needed to support future communities. Similar to Ebenezer Howard's utopian ideas the report described a pattern of land use that aimed to provide well-positioned and sufficient industry, open space, compact amenities and public services. Journey times could be limited to 30 minutes to open country, 20 minutes to work and 10 minutes to local shops and school. This report provided the concept for RMJM's study.

RMJM's study for Central Lancashire New Town was organised into two phases. First, within 12 months, to advise the Minister on the area to be designated under the New Town Act of 1965, and second, to produce a master-plan by April 1968, which would be handed over to the Development Corporation. RMJM's brief had been to identify a '*growth zone in this part of Lancashire which would improve the social and economic well-being of the whole region, contribute to its industrial revival and the renewal of the older towns, and provide for some of the housing and other development needs of the south east Lancashire conurbation'* (Ministry of Housing and Local Government, 1967, 1). In summarising the current conditions RMJM (1967, 29) reported that '*the whole area immediately south of Preston gives the impression of non-descript housing development in which large scale renewal has been and is still prejudiced by infilling. It presents the most difficult environmental and renewal problems of any of the urban concentrations in the study area'*. The subsequent master-plan needed to accommodate a predicted population increase from 253,000 in 1966 to 503,000 in 1991 over 51,460 acres, 44,187 acres of which had been identified as suitable for development. Four key criteria needed to be satisfied – the

integration of new and existing developments to promote urban renewal including raising the quality of existing development and maintaining a clear contrast between town and country; the phasing of construction in self-contained locations which have appropriate urban character; the integration of all forms of private and public transport, whilst segregating vehicles and pedestrians; land use should accommodate changing circumstances and eventual growth beyond the predicted population intake but not necessarily within the designated area.

The study presented a theoretical urban strategy that assigned diverse types of buildings and amenities to individual community units. Four sizes of units were discussed: neighbourhood, district, township and city. Cities, with a population of 300,000-500,000, would have a full range of facilities such as concert hall, zoo and botanical garden. Based on a strategy of multi-centred growth centres, RMJM stated that

> if a new city can be created by the close inter-connection of a number of rapidly growing townships whose central functions are continuously expanded in parallel with growth, the whole complex will then attract the complete range of city scale facilities which are at present regionally available only in the congested cores of Liverpool and Manchester. (RMJM, 1967, 55)

Major functions would be dispersed amongst the townships to give each place a clear identity and function within an integrated urban complex. These would be served by a 'three strand' infrastructure model to enable each location to function independently and as part of a city. This comprised two longitudinal high-speed by-pass roads and, to allow movement between townships and districts by express public transport, a spine road connected to transverse routes.

Existing communities needed to be expanded to accommodate 128,000 additional people including 112,000 south of the Ribble, leaving 122,000 accommodated in two New Towns as greenfield developments. Preston was proposed as the administrative, retail and service industry core. Its central area

would need to be enlarged, improved and remodelled including a new bus station at Spring Gardens to permit access to the east end of town centre and market. Chorley's population would increase to 51,000 to become a township and Leyland, which RMJM identified as having most potential to expand and acquire new functions, would increase to 70,000, requiring a new social and shopping area, possibly outside the present urban area. The study concluded the area was capable of accommodating around half a million people.

Prior to CLNT's designation, Preston Corporation had commissioned Grenfell Baines and Hargreaves in 1959 (who later became Building Design Partnership in 1961) to design a new bus station and 500 capacity car park. The initial brief aspired to collate the town's dispersed termini of bus services. As the idea for a New Town in central Lancashire developed over the next six years, the size, role and importance of the bus station increased to create a prestigious public building that would be '*unrivalled in size and facilities in England [and] the Continent'* (*The Architect's Journal,* 1970, 1134). On completion the *Architectural Review* concluded that the building's '*imposing scale seems doubly right for a future mini-metropolis'* (1970, 33). 171metres long, the bus station can accommodate 80 double-decker buses nose-on and 1100 cars on split-level decks above. Cantilevered curved edges of the concrete car decks create ribbed canopies to protect passenger platforms from weather. A central spine of passenger facilities and offices divides the ground floor concourse into two large waiting halls. The building later became part of a wider retail, entertainment and office complex linked by raised walkways and subways to segregate pedestrian and vehicular movement. This included the Guild Hall and Charter Theatre by RMJM (1969-73), commissioned to commemorate the 1972 Preston Guild, which is also currently threatened with demolition (BBC News Online, 2013).

Figure 3. Leyland Magistrates' Court, Lancastergate, Leyland, Lancashire, designed by Lancashire County Council Architects, 1970 (the author).

In Leyland a civic core was started. Two examples of township civic architecture by Lancashire County Council Architects' Department are the Magistrates' Court and Library at Lancastergate, Leyland, 1970. The Magistrates' Court (figure 3) is a dominant grey brick box topped with two copper roof pyramids. Key features of the street elevation are the wide external staircase and a band of vertical concrete fins which define the windows and six single-leaf entrance doors. Vertical windows are repeated on the side elevations. Adjacent to the court is the library. Also in grey brick with three acute roof pyramids, this is a single-storey brutalist building.

Figure 4. Cuerden Pavilion, Cuerden Hall, Lancashire, designed by Robert Matthew Johnson Marshall, 1971 (the author).

The headquarters of Central Lancashire New Town's Development Corporation was first building constructed for the city following the New Town's designation in 1970 (figure 4). The Development Corporation had selected Cuerden Hall and Park for its location, a historic building of local interest set within mature grounds and diplomatically placed in the centre of the designation area with no apparent favouritism to Preston, Chorley and Leyland. At the time Cuerden Hall was occupied by the armed forced and was due to be vacated in 1973, when it was to become a public amenity. Designed by RMJM, the building is noteworthy due to its rapid construction and its simple and elegant expression. The close working relationship of architect, engineer and quantity surveyor and the careful selection of materials enabled it to be completed in four months (*The Architect's Journal*, 13 September 1972). Unified by a generous flat roof, the external envelope comprises a lightweight prefabricated timber and glass external walls set back from a framework of standard rolled steel sections to form a shaded cloister. Internally, two permanent central service cores subdivide an adaptable

office space that offers views into the landscape. Originally the building employed an interesting use of colour. External uncased steelwork was painted yellow to contrast against the mature trees and shaded external walls. Internal block work partitions were left unplastered apart from cork-lined walls in the meeting rooms and the service cores which were plastered and painted red.

In November 1973 the Development Corporation published a draft outline plan which would require a £900 million investment (at 1973 prices) from both private and public funders (*The Guardian,* 1973). 72,000 new homes were to be built in villages of about 3000-5000 people, grouped into districts of approximately 20,000. Substantial recreation areas were planned for the Ribble and Lostock Valleys including facilities for watersports, equestrianism and a zoo. These proposals then progressed into an outline master-plan which was published in 1974 (figure 5). A public enquiry and the acquisition of land then commenced. However, by 1976 national funding for New Towns was revaluated as Ministers were concerned that inner city areas were starting to suffer economically and the following year *The Times'* front page reported that CLNT's population increase target needed to be significantly reduced to 23,000 people (*The Times,* 1977, 1). During the 1980s New Towns were privatised and CLNT's Development Corporation was dissolved at the end of 1985.

On a national level, across the 20 English New Towns which had been started, 340,000 new homes, 10.5 million square metres of factory accommodation, 1.3 million square metres of offices and 6,500 shops had been constructed. In Lancashire where preparations had been made for a new city the legacy includes a range of large-scale public buildings, some in low-density town centres which have been supplemented by large scale residential areas.

Today central Lancashire faces similar challenges to those encountered during the 1960s – the redevelopment of its numerous post-industrial centres and population migration due to limited employment opportunities. It also has considered Preston's centre's regeneration through the abandoned Tithebarne redevelopment (2005-2011) following achievement of its City status in 2002. In light of the current trend in the UK to promote Garden Cities as an option to

address national housing shortages, perhaps the part-completed precedent of Central Lancashire New Town may be worth reconsidering?

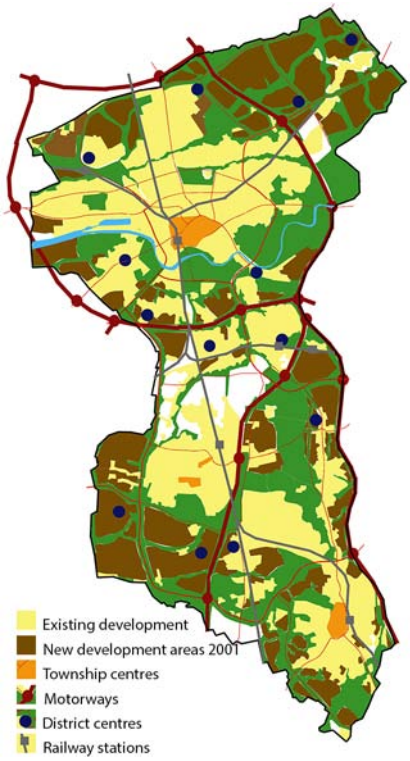

Figure 5. Analytical diagram of CLNT proposals, 1974 (the author)

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PORTUGUESES IN CIAM X

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Abstract

The Portuguese delegation at CIAM X presented a proposal for a rural community. This was an innovative attitude that reflected the rapprochement to vernacular architecture. The same approach that is present in the survey to folk architecture, carried out in the 50s by some of the Portuguese modern architects.

This paper focuses on the characteristics of the Portuguese proposal on Drubrovnick in 1956 and what it represented in terms of national and international architectural culture.

Starting from coeval documentation – letters, drawings, reports, notes and other manuscripts – it was intend to re-read the choice of the Portuguese team in its articulation with the rural world. This choice represents an innovative contribution that combine multiple approaches, which going through anthropology culminate in the architecture.

On the one hand, it is important to deepen insight of the level of relationship of this project with the Arnaldo Araújo's CODA (Contest for Obtaining the Diploma of Architecture). On the other hand is important to explore connections with the urban interventions that were running on the countryside.

Keywords: CIAM 10; CIAM Porto; Vernacular; Rural Habitat; New Regionalism

Portugueses in CIAM

The Portuguese liaison with CIAM dated from post Second World War, specifically in 1952, when Alfredo Viana de Lima (1913-1991) and Fernando Távora (1923-2005) travelled to Hoddesdon in England to attend the CIAM 8 Congress. At that

time, Viana de Lima was invited by S. Giedion and JL Sert to be the CIAM's Portuguese delegate.

This is precisely the date that the ODAM[1], a group of modern architects, existing since 1947 in Oporto, joins the CIAM. As a consequence, in 1952 the 'ODAM's project for a new status[2]' was drawn up, in which architects and architecture students, who were admitted, should be totally integrated "in the objectives and purposes of the organization and take the responsibilities that are required also as members of CIAM". In addition, another ODAM's intention was "Promoting the values in which Modern Architecture and Urbanism must be established that have been formulated by CIAM and struggle for its adoption", which shows the dependence of ODAM relating to CIAM and some overlapping objectives between ODAM and CIAM Portuguese delegation.

The settling in Oporto of all architects of the Portuguese group gave its name - CIAM Porto -, despite not having existed no other group in the country. Though, there was an intention to form "with modern architects from around the country, a unique national group, with the same objectives and purposes" and "establish the most convenient liaison with CIAM"[3], aspire which did not happen.

Upon its formation, CIAM Porto will be actively involved both at CIAM Council Meetings and the latter 3 CIAM congresses that followed[4].A year

after its acceptance, CIAM Porto, still "in organization", leaves Portugal for the first time to attend the CIAM Council Meeting held in Sigtuna, (Sweden), related to the preparatory work of CIAM 9, around the definition of *Habitat* as well as its

[1] Organização dos Arquitectos Modernos [Organization of Modern Architects]. Upon its entry to the CIAM, the intention was to change the initial designation to the Organization for the Defense of a Modern Architecture, maintaining the original acronym, ODAM. Vd handwritten note on the document *ODAM - Projecto para um novo estatuto*. Typewritten document, 18/XI/1952. CEAA Archive

[2] *ODAM - Projecto para um novo estatuto*. Typewritten document, 18/XI/1952. CEAA Archive

[3] *ODAM - Projecto para um novo estatuto*. Typewritten document, 18/XI/1952. CEAA Archive

[4] As CIAM Porto group, coordinated by Viana de Lima, its participation was at the CIAM council meeting in Sigtuna, 1952 June 25-30, at CIAM IX in Aix en Provence 1953, July 19-26, at CIAM council meetings, Paris, 1955 and July 4 in La Sarraz 1955 8-10 September and at the CIAM X in Dubrovnik, 1956 August 3-13. In the last CIAM Congress in Otterlo (The Netherlands) in 1959, the guidelines were in order to finish the participation of national groups and return to the old method of individualized communication. So Fernando Távora presented the Project for Vila da Feira market and Viana de Lima the project Bragança hospital

guiding principles and form of representation, with the aim of drawing up a *Charter*. Fostering this debate, the Portuguese group presents a proposal of intent, drafted under Viana de Lima's responsibility and guidance[5], which focuses on two main aspects: (1) "Analysis of *Habitat*'s functions " and (2) " Suggestion for a Grid".

The starting point was to establish a "method of analysis", with full implementation of each particular case and with reference to each national group. Considerations drawn from the case studies in different countries of the world would provide to achieve common objectives to define the *Charter of Habitat*, thus contributing to accomplish the "desired universal scale" [6].

Following this proposal, Viana de Lima have been invited to be part of one of the two preparatory commissions of CIAM 9, established to define the "Habitat Grid", together with Eccochard, Forbat, Hovens Greve and Tyrwhitt and chaired by Bodiansky[7].

In 'Housing Considerations'[8], CIAM Porto suggests that the *Charter of Habitat* should pursue "on our social realities, on the urgent needs of our population, with the purpose to awaken in all who are responsible the desire of housing for everyone." Consequently the notion of *minimum* scale arises: the objectives, the concepts, the analysis but foremost "the desire to see the 'Charter of Habitat' not a form of techno-aesthetic-philosophical directives, but above all a charter of rights to determine the minimum housing conditions applicable to all countries", are now depending on that scale.

In the following meetings, the Portuguese group led by Viana de Lima, will present not only successive inputs to the *Charter of Habitat* but also some

[5] Presentation of the Portuguese proposal at CIAM Council Meeting, Sigtuna, Sweden. Viana de Lima Typewritten document. CEAA Archive

[6] CIAM X/Rapport du Groupe CIAM portugais à la Réunion CIRPAC du 4 Julliet 1955. Typewritten document. CEAA Archive

[7] The other commission established to define *Habitat*, chaired by Wogensky, consisted of Alaurant, Ahrén, van Eesteren, Emery, van Eyck, Lauritzen and Roth . CEAA Archive

[8] *Considérations sur le logement*. Typewritten document of Portuguese CIAM group, undated. CEAA Archive

approaches to the *Grille CIAM d'Urbanisme*, over which recognizes quality but also some rigidity that would need to be smoothed.

Moreover, the discussion about the constraints of the *Grille CIAM* would be also addressed within the ODAM, which used an improved version, from the point of view of their authors, in the group exhibition held in Oporto precisely in 1952[9].

The application of the *Grille* as a reasonable tool in the analysis of the city, divided by the Athens Charter's four functions, was a lively debate that went far beyond the CIAM 9.

The Portuguese CIAM group reaffirmed their proposals to adapt this working tool in addressing issues of urbanism and habitat[10], against the new solution widespread by Team 10[11], which proposed a more synthetic approach, now considering each problem as an entity, and thus in total rupture with the ancient analytical method, expressed by the *Grille* CIAM. In relation to this solution, which CIAM Porto accepted losers, but without much conviction[12], stressed the fact that not seems feasible, "the analysis of Habitat, according to the scheme

[9] Octávio Lixa FILGUEIRAS, *Aditamento à Grille C.I.A.M. d' Urbanisme*, paper presented in XXIV Congresso Luso-Espanhol para o Progresso das Ciências. Madrid: November 1958, p.10. Typewritten document. CEAA Archive

[10] For the Habitat functions initially defined - *Health, Activity* and *Thought* - it was proposed by CIAM Porto another new one, entitled *Affectivity*. CIAM X / Groupe CIAM Portuguais /Réunion CIRPAC du 4 Julliet 1955 / Rapport sur le scheme de Grilles proposées. Typewritten document. CEAA Archive

[11] Designation that CIAM X Commitee, composed initially Bakema, Smithson, Candilis and Gutman came to adopt during the preparation of the congress. This initial group, incorporated new elements, and ended up getting quite wider and whose activity was far beyond that for which it was originally created.

[12] In a document compiled by Bakema, dated from 1955, for the first time the Portuguese group presents a critique of the synthetic nature of the new grille, which in their view would create difficulties in the analysis of the working committees. (CIAM X – 1955 / Resumé des réactions dans "Instructions aux Groupes" / (Project no 5, envoyé aux groupes le 22.12.'54) Typewritten document. CEAA Archive. Later, Filgueiras, translating the feel of the Portuguese group, notes that the TEAM X guidelines constituted not only a deviation, as well as a step backwards from the previous CIAM grilles and the Portuguese proposal for CIAM X was the possible, given the new guidelines. (Octávio Lixa Filgueiras, *Aditamento à Grille C.I.A.M. d' Urbanisme*, paper presented to XXIV Congresso Luso-Espanhol para o Progresso das Ciências. Madrid: November 1958, p.10. Typewritten document. CEAA Archive

proposed by Team 10 [...] because it does not form a structure of propositions through a careful analysis."[13]

One can recall that in the Report presented to the CIRPAC[14] meeting of July 4, 1955, the Portuguese group openly expressed his disagreement with the direction followed by Team 10, even complaining that their proposals were never considered. At that time, and in a last attempt, they propose a solution which brings together the guidelines presented at the Paris Council meeting, in 1954, with those now under discussion for the CIAM 10 Congress[15].

One hypothesis could be raised: since the Team 10's proposals were focused in identity and community issues with great emphasis on human relations, maybe they can somehow have removed the 'security blanket' from a whole "established" process of reading and doing city, rooted in a functionalist approach.

So far, the analysis of each of the four functions was understood as totally within itself, without allowing other relationships than those established by the plot of the *Grille d'Urbanism*[16].

The Porto Portuguese group also took part in the choice of venue and date of the CIAM X. When it was recognized that this could not be held in Algiers, an attempt was made to hold this congress in Portugal in Braga city. For this, CIAM Porto got the official support of the government, specifically by the Minister of Public Works of the Salazar government[17].

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[13] CIAM X / Rapport dui Groupe CIAM portuguais à la Réunion CIRPAC du 4 Juillet 1955. Typewritten document, 29-06-55. CEAA Archive

[14] Comité International pour la Résolution des Problèmes de l'Architecture Contemporaine [International Committee for the Resolution of Problems in Contemporary Architecture].

[15] CIAM X / Rapport dui Groupe CIAM portuguais à la Réunion CIRPAC du 4 Juillet 1955. Typewritten document, 29-06-55. CEAA Archive

[16] We thought the Portuguese team was aware of the limitations of the Grille CIAM d' Urbanism, as can be seen from the observation by O.L. Filgueiras: "that which refers to the organization of life escapes through the meshes of the four functions - and is, in fact, beyond the scope of an analytical thought" (Octávio Lixa Filgueiras, *Aditamento à Grille C.I.A.M. d' Urbanisme*, paper presented to XXIV Congresso Luso-Espanhol para o Progresso das Ciências. Madrid: November 1958, p.10. Typewritten document. CEAA Archives

[17] Vd. *Memorandum*, July, 18, 1955. Typewriten document. Handwritten: "Ass. Távora / Viana de Lima". CEAA Archive

This attempt turned out to be inconsequential because the Yugoslav group had first submitted the proposal for the meeting be held in Dubrovnik, which effectively has happened.

The only consequence of the Portuguese proposal was the postponement of it for one year later. This is because, the preparation of the meeting was transformed into a field of discussion, critique and disruption arising from what some perceived to be the lack of CIAM 9 results, to launch a *Charter of Habitat* and the inadequacy of analytical methods addressing the problems of the postwar city.

It should also be noted that the dynamism shown by CIAM Porto in international meetings, had no parallel in the national context.

As already mentioned, the CIAM group ended up confined to Oporto, where quickly absorbed the ODAM group[18].There were periods of some internal disagreement, as reflected in the group meetings' minutes which resulted in changes, among others, of its initial constitution[19]. Moreover, the moment that CIAM Porto was created precisely corresponded with the beginning of the discussions that will lead to internal cleavage and contestation within the international CIAM. This process has sufficiently already studied to abstain from developing it in this paper (vd. E.P. MUMFORD, 2002).

Preparing CIAM X

As is well known, the CIAM 10 resulted in adopting the TEAM 10 proposals, instructed by CIRPAC to prepare "the program, the standards of presentation and the method of work" [20], and "all of them agreed to work as a group and

[18] To the replacement of the ODAM group by the CIAM Porto, it was already called attention by P. Vieira de Almeida e M.H. Maia (1986) e P. Vieira de Almeida (1996). Later, Alexandra Trevisan (2013) will specify that the replacement will not have been immediate, and the two groups coexisted until 1953. Towards a better understanding of the relationship between the two groups see Alexandra Trevisan (2013).

[19] The study of the Minutes of the CIAM Porto meetings in its multiple implications is currently underway in the CEAA.

[20] CIAM/ Paris, June 30th, 1954. CIAM Council Meeting minute. Typewritten document . CEAA Archive

meet as frequently as necessary, maintaining close contact with an Advisory Group" [21]. It is also well known that these proposals constitute a split in relation to previous congresses and reflect the critical review of the Athens Charter doctrine, started with Doorn's manifest in 1954.

On the way, the idea of getting a Charter of Habitat was lost.

However, the theme of Habitat remains on CIAM 10, but now with the sub title: 'Problem of Inter-Relationships: First CIAM proposals – Statements and Recommendations', which refers to a new theoretical universe more focused in identifying problems and solutions at different scales, rather than concern for the establishment of universal principles.

From Team 10's point of view, the study of human associations should be constituted the aim of urbanism, and also should "consider every community as a particular total complex", despite its dimension. This led to the identification of four fields working scales: (1) city, (2) town, (3) village, (4) isolate[22].

In the guidelines sent to all national groups, Team 10 clarifies that it is not intended to present "entire projects for villages, towns or cities, but just projects with ideas for [*ideal*] *habitat*, which could be integrated within those structures" [23].

Simultaneously, the main relationships are defined to be discussed within each scale of association to establish the physical conditions of the habitat: (1) housing and its extensions (2) old type's houses and its architectural expression (3) height and low buildings (4) free vehicles traffic and pedestrians circulation (5) regional elements and current means of expression (6) daytime and night-time habitat.

[21] Consisting of: J.L.Sert (President), S. Giedion (General Secretary), Le Corbusier (Vice-President), W. Gropius (Vice-President) and J. Tyrwhitt (Liaison Officer)" (CIAM/ Paris, June 30th, 1954. Typewritten document. CEAA Archive

[22] Structural scheme / CIAM X. Guidelines to the groups. Typewritten document, December 1954. CEAA Archive

[23] TEAM X guidelines to the groups. CEAA Archive

Finally, these guidelines contained a new method of work presentation, which wanted to be synthetic, in opposition to the previous analytical method, accused of reading the city as a fragment.

The projects had to be condensed into 4 standard panels, with different levels of treatment: "Panel 1 – The Problem"; "Panel 2 - General Solution"; "Panel 3 - Detailed Solution"; "Panel 4 - Contributions".

The graphic documentation and the nature of information that should be on each panel were also predetermined.

The Portuguese team – consisting by A. Viana de Lima, F. Távora and O.L. Filgueiras, with the collaboration of 1 engineer (Napoleão Amorim), 2 trainees architects, (Arnaldo Araújo and C. Carvalho Dias) and 1 ESBAP student, (Alberto Neves) – chose to contribute to the village working scale by proposing the 'Plan for a Rural Community'[24] in Trás-os-Montes.

The work will be presented in Dubrovnik Modern Art Gallery, in August[25] by the Portuguese delegates, Viana de Lima and Fernando Távora.

The Portuguese Project

Regarding the projects displayed at CIAM 10, five of them were directly related with the rural world, although their approaches had been different. Its authors were the Smithsons, John Voelcker, Aldo van Eyck, the Norwegian PAGON (Progressive Arkitekters Gruppe Oslo Norge) group and the one presented by CIAM Porto, (vd. N. Mota, 2012).

The Portuguese team, despite its declared disagreement with the adopted grid, responded in a qualified way with a proposal that fostered the relationship between modern language and features of vernacular tradition of the region.

[24] The proposal was presented in French with the title 'HABITAT RURAL – Nouvelle Communauté Agricole'
[25] During 10 days, from 3 to 13 August, 1956.

Maybe it was not just a coincidence that most of the team members were at that time involved in the *Survey on Portuguese Regional Architecture,* in particular zone 1 – Minho and zone 2 – Trás-os-Montes.

In fact, it is also not by chance that the village under study is located in Trás-os-Montes. Perhaps the survey was more developed in this area, or the data collected was more conducive to the work in question.

In addition, not only the team of Trás-os-Montes was especially sensitive to anthropological issues, but also had the support of the previous work, which in this region came to be developed by Jorge Dias, the most important Portuguese anthropologist at that time.

Rio de Onor, community village, crossed by the Portuguese-Spanish border, made known by this anthropologist (J. Dias, 1952), has a large presence in the Portuguese proposal. The images of this village are dominant in the 4 panels that were displayed, providing a reference on morphology, implantation, modes of dwell and also in building materials. Most of them were subsequently published in *Popular Architecture in Portugal* (1961) which shows the engagement between this work and the survey.

Moreover, it seems that the proposal has a great freshness in approach to the problem, when clearly the CIAM Porto architects take the rural dimension of the country.

> "Portugal is still a country with a primarily agricultural nature (...) and the rural case is, as is common throughout the world, the ultimate concern of those who are responsible, even verifying that the predominance of urban over rural is manifest even in the field our professional and doctrinal activity" (Panel 1).

This awareness, possibly due to the Survey, led to the choice of the region – the Portuguese northeastern - and the scale of intervention – the village.

From our point of view, the proposal seeks to address the problem of isolation and abandonment of the one of the most remote regions that are further away

from urban centers, and in which cultural structures are more archaic, finding a territorial mechanism that will foster its relationship with the rest of the country.

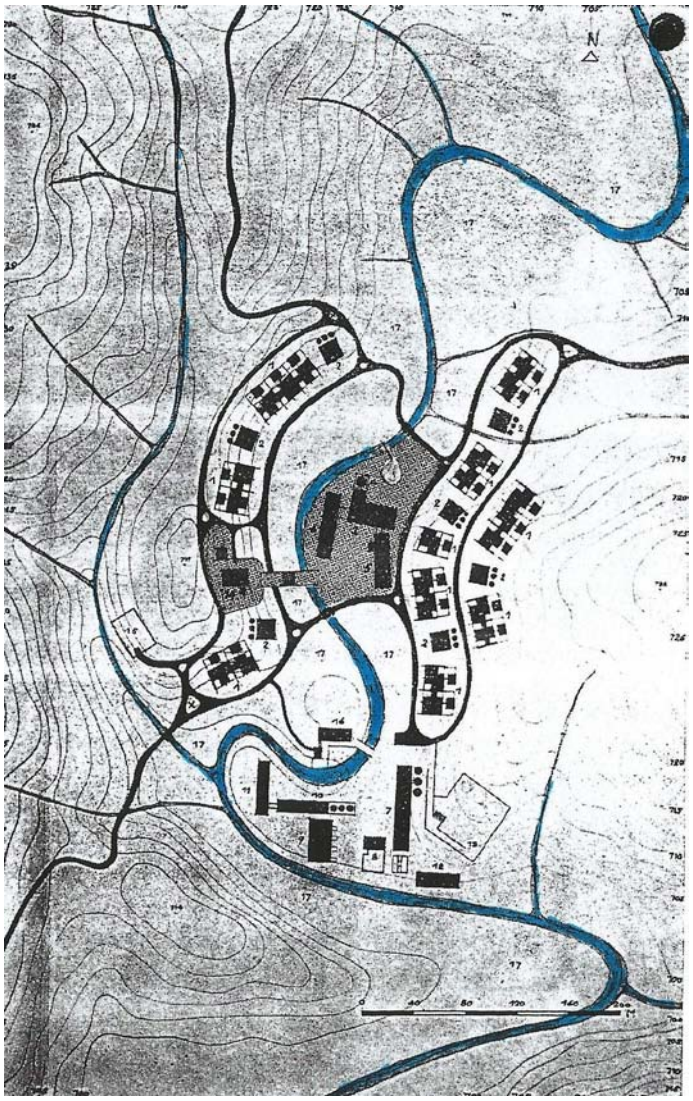

Figure 1. Image of the whole village. Panel 2 (fragment) CEAA Archive

A new community village was created. The plan envisaged the construction of about 40 houses for a community based on 200 inhabitants. Suitably equipped, it had as an objective to foster synergies with other communities and thus contribute to the establishment of the inhabitants in their environment, with much better living conditions, and "within a contemporary concept, defending and revitalizing ancient habits (ways of living)" (A. Viana de Lima, 1996, pág.51-96).

Located in the center of a strategic area, it would act as a structural pivot between other existing villages of the region, and between them and the towns of the region. In turn, these would connect to other urban centers and from these to the main decision centers, which in turn are connected with the largest city – the Portuguese capital[26].

Essentially, a little scheme is planned, applied in a remote region of the country, a kind of solution that connects local, regional and national scales. With this new village, the group draws a solution that crosses the different scales of association proposed by Team 10.

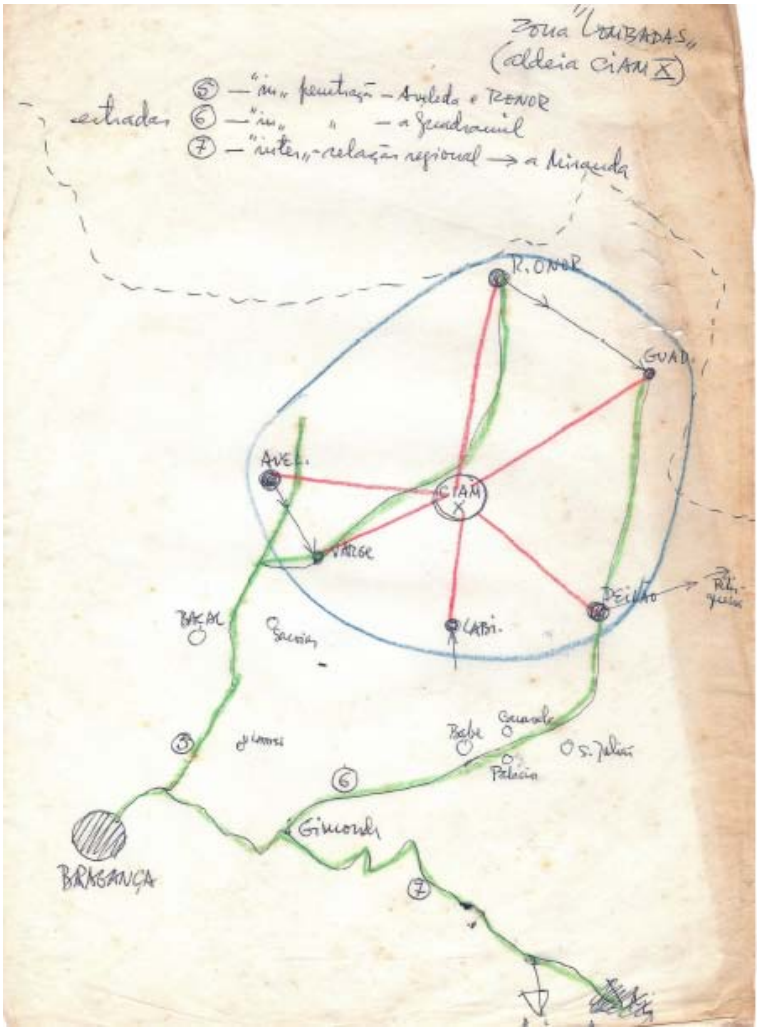

Figure 2. CIAM X village scheme. CEAA Archive

[26] There are several schemes that document this solution. CEAA Archive. See also the C. Carvalho Dias testimony (2013)

According to the one of the author's testimony, this proposal also presumed the renovation of the villages which the new cluster was associated with (C. Carvalho Dias, 2013). This refers to the measures that came to be taken at this level by Junta de Colonização Interna (JCI) [Internal Colonization Department] (see MH Maia; I.Matias, 2013).

The new village is located in a valley, on both margins of the river, as is common in the region. The Civic Centre takes the central part of the village in one side and is connected to the church, across the bridge, which is on the opposite margin. Also on the slopes, the housing unit is located in organic lines, parallel to the river path, thus leaving available the fertile land along the water to family farms.

A little further away stands a "cooperative group" that includes diverse equipment for collective use, which includes the school, and the great buildings of agricultural production.

The plan provides for dwelling an evolutionary layout which group 2, 4 or 6 modules of houses, interspersed with small collective structures which support them, giving some breath to the whole set.

The architectural proposal

Although the information contained in the panels included only the parts related to the housing type solution, in the documentation team exists a set of documents which allow us to better understand the idea of the village and the concerns which have inspired its design.

It was proposed to build a church, a school, the *Casa del Popolo*, a collective oven, a consumer cooperative and a medical care centre, which means to bring together in the same village all community services common in small villages, though to gather them all in the same cluster were relatively rare.

In fact, some of these equipments are designed with surprising modernity in the Portuguese context of the time.

This is the case of the health care centre in whose study concludes that, in addition to medical support, this would also support social care and the creation of a kindergarten. This is clear in envisaging housing for professionals who were involved: medical, social workers and teachers.

In turn, in the explanations relating to the *Casa del Popolo* a very rich program activities, with clearly urban characteristics, are mentioned - "cinema, radio, television, theatre, recitals, lectures, seminars, [...] exhibitions" - which would take place in a meeting room for 200 people, where also would perform the traditional councils of rural communities in the region. This equipment also includes a library, living room, game room, and some facilities.

The primary school should be both in "contact with reality" and “straightly connected with the farming co-operative” a situation that came to be reflected at the level of its location. In addition to a single classroom for both genders, unusual choice at the time, "a work (living museum) room," a teacher/secretary room, a corridor-gymnasium and a cloakroom with toilet facilities were joined. The architectural design of the school provided for the possibility of growth in another room.

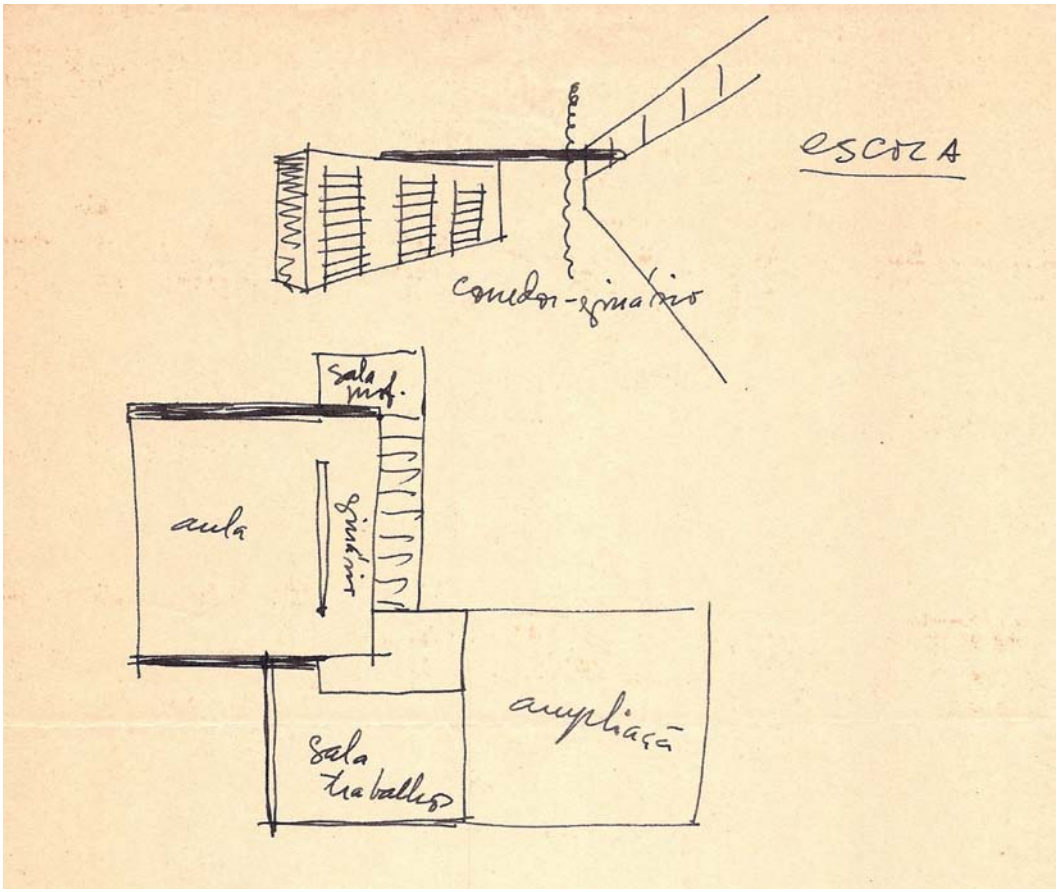

Figure 3. Primary school scheme. CEAA Archive

This concern with the possible need to increase the building is also present in the proposal of an evolutionary type of housing, included in panel 3.

Moreover, the proposed floor plan was designed to allow for a wide range of types of housing that could easily grow depending on family needs, by filling some voids, strategically placed for the purpose. It is not an architectural process by attaching new structures, but the creation of expansion zones in its internal compositional structure.

The hypothesis of easily turn a small typology in a greater one, fosters in our point of view the stabilization of the family in the same housing nucleus, thus creating possible relations of identity and rootedness with the village community.

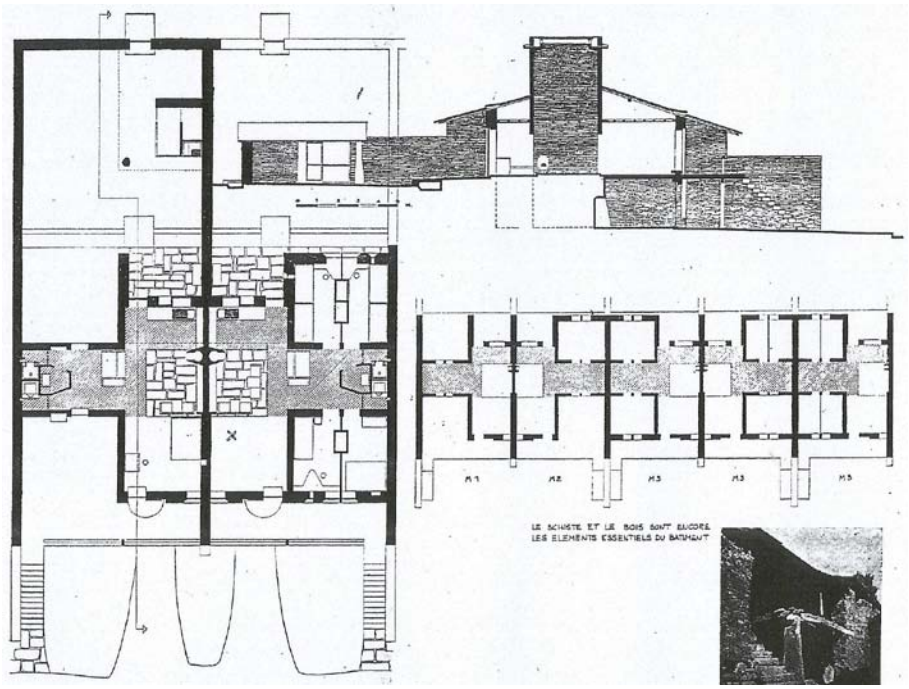

Figure 4. Evolutionary type of housing. Panel 3 (fragment). CEAA Archive

Furthermore, it was envisaged that the houses were built “using local materials whenever possible” and that could grow through a process of self-construction that was simultaneously a process of appropriation that “would allow convert such housing [-type] in *his* home” [27] .

On the other hand, there is a clear concern in understanding the internal structure of traditional housing and modes of inhabiting the region. This led to the valuing of the fireplace as "core of domestic life" and thus as the focal point of the house. In parallel, this also led to the valuing the role of the square as the core "of life in society" and central part of the village.

The constant presence of porches ensures the areas of transition-space, "space that is neither inside nor outside and reflects an ancestral form of dwelling" (P. Vieira de Almeida, 1963, 2010) and provides the formal proximity to some Rio de Onor’s houses.

The closeness that was sought both in terms of form and functional structure of vernacular housing, did not stop the focus on its improvement, particularly with

[27] X CIAM Congress. Portuguese Delegation. Typewritten document. CEAA Archive

regard to the introduction of sanitary facilities and a clear separation between residential areas and those that were intended for animals.

This proposal is part of a debate on rural housing that arose at national and international level and, in the Portuguese case led to the reinvention of rural housing, in which diversified solutions ranging from adopting a clearly modernist language to the redesign of traditional forms.

Proposal's effects

The relationships that were more directly established with the Portuguese proposal to CIAM X are related to Inquérito à Arquitectura Regional Portuguesa (1955-1961) (Portuguese Regional Architecture Survey) and to final thesis degree by Arnaldo Araújo (1957) entitled *Formas do Habitar Rural – Norte de Bragança. Contribuição para a estrutura da comunidade* (Forms of rural habitat – North of Bragança. Contribution to the community structure), mainly studied the first case than the second.

In fact, in his thesis, Arnaldo Araújo develops the assumption that the accomplishment of the program presented in Dubrovnik could contribute "to the creation of a *new regionalism"*, through the "effort in analysis and detection of specific needs of specific populations, as well as committed to local proposals for intervention". In addition, "the Portuguese architect, without having to abandon or reduce (and without being able to do so) his relations with the universal lines (technical and aesthetic) of modern architecture, should be close to the realities of his people, to interpret their virtues and build a rooted Portuguese architecture" (A. Araújo, 1957).

Less known is the consequence of this proposal to the official level.

Figure 5. Arnaldo Araújo CODA (1957). CEAA Archive

In its resolution dated from 06.12.1956, the Minister of Public Works praised the work of the Portuguese team, specifically Viana Lima, Távora and Filgueiras and expressed the Government's interest in this study.

Specifically, he expressed willingness to welcome with satisfaction not only the next CIAM meeting in Portugal, as well as an exhibition on rural habitat in the

United States, however recommending the contact with SPN/SNI[28] for the latter proposal.

Finally, the Minister informed that the Report submitted by the architects would be directed to DGSU [General Department of Urban Development Services] to report on "practical course" that could result from their suggestions.

Consequently, the Department's opinion considers the work as being of national interest and points out "two possible practical course" - "the possibility of a broader regional planning, or the particular case of a village (in the same region or elsewhere)" – giving priority to the first hypothesis.

Although being an unstudied subject, it is noted that one year after the proposal to CIAM X, the development of a Regional Plan for Trás-os-Montes[29] was delivered to this team[30].

The underlying enthusiasm to the DGSU´s opinion as well as the manifest interest of the Minister reflects the impact that the Portuguese project had at the national level.

Choosing taking up the problems inside the rural reality, the solution for a new community village, which it was presented by the Portuguese delegation in CIAM X, is a strong example of a dynamic "planning of non-urban areas", with clear advantages for regional development and for the "defence of their cultural heritage and natural values related to it." [31]

We believe that this connection with the rural landscape found by this team in traditional regional architecture was influential in the paths trodden by the Portuguese architecture.

[28] The Secretariat of National Propaganda (SPN) was created in 1933, and in 1945 was re-named National Secretariat for Information, Tourism and Popular Culture, most commonly known simply as the National Secretariat of Information (SNI). Because of this, the department is usually referred to as the SPN/SNI.
[29] As can be inferred from the text of two complementary contractual documents, dated from October 1957 and April 1958. CEAA Archive
[30] Specifically Viana de Lima, Fernando Távora and Octávio Lixa Filgueiras.
[31] Parecer da DGSU. Arquivo CEAA.

Acknowledgments

This work was conducted under the following projects:

Portuguese Participation in CIAM X (ESAP/2013/P06/SATH) – Secção Autónoma de Teoria e História (SATH) [Autonomous Section of Theory and History] / Centro de Estudos Arnaldo Araújo (CEAA) [Arnaldo Araújo Research Center] of Escola Superior Artística do Porto (ESAP) and as such, funded both by the ESAP budget and by national funds by FCT - Foundation for Science and Technology (PEst-OE/EAT/UI4041/2014) under the Development, Consolidation and Strengthening of National ID Institutions Network (OE)

Southern Modernisms (EXPL/CPC-HAT/0191/2013), funded by national funds through FCT under Project 3599 - Promoting the Research Production, Technological Development and Innovation.

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Alexandra Cardoso. *Architect (FAUP, 1994). Integrated researcher and board member of Centro de Estudos Arnaldo Araújo (CEAA), R&D unit 4041 (FCT); Director of CEAA (2003-2010). Has been working with Pedro Vieira de Almeida since 1995, in the study of the work of some Portuguese architects, such as Viana de Lima, Arnaldo Araújo e Octávio Lixa Filgueiras. From these studies resulted in several exhibitions and publications. Member of the projects The "Popular Architecture in Portugal." A Critical Look (PTDC/AUR-AQI/099063/2008 / FCOMP-01-0124-FEDER-008832), Southern Modernisms (EXPL/CPC-HAT/0191/2013) and and Portuguese Participation in CIAM X (ESAP/2013/P06/SATH). Last related publications, include the paper O Inquérito à Arquitectura Regional: contributo para uma historiografia critica do Movimento Moderno em Portugal (with MH Maia, 2012), the books Dois parâmetros de Arquitectura Postos em Surdina. Leitura crítica do Inquérito à arquitectura regional. Caderno 3 and 4 and the edition of the To and Fro: Modernism and Vernacular Architecture (all three with MH Maia and JC Leal, 2013)*

Maria Helena Maia*. Graduate in History/Art and Archaeology and PhD in Modern Architecture and Restoration. Professor at ESAP and president of its Scientific Board. Director of CEAA, FCT R&D unit 4041 and principal researcher of its Architectural Studies research group; Researcher of the projects Photography, Modern Architecture and the "Escola do Porto": Interpretations on Teófilo Rego Archive (PTDC/ATP-AQI/4805/2012 / FCOMP-01-0124-FEDER-028054), Southern Modernisms (EXPL/CPC-HAT/0191/2013) and Portuguese Participation in CIAM X (ESAP/2013/P06/SATH). Last related publications, include the books To and Fro: Modernism and Vernacular Architecture (ed.) and Dois Parâmetros de Arquitectura Postos em Surdina. Leitura crítica do Inquérito à arquitectura regional. Cadernos 3 and 4 (all with A. Cardoso and J.C. Leal, 2013). Prizes:*

(1) José de Figueiredo 2008 of Portuguese National Academy of Fine Arts; (2) Ignasi de Lecea 2007-2008 of Public Art & Design Observatory –Universitat de Barcelona (with M. Acciaiuoli and J. C. Leal).

20TH CENTURY NEW TOWNS
From Archetypes to Uncertainties

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Abstract

Since the early twentieth century, the history of the city and modern urbanism was particularly marked by ideas and projects for new cities with a strong utopian and paradigmatic character:

- *prototypes, unsuccessful or partially implemented, which unquestionably influenced the culture and practices of urban planning and architecture, achieving still to sensitize the collective imagination over the image of the cities of the future;*
- *primordial archetypes, acting as true testimonies of concepts, intentions or ways to devise new dimensions and features of the urban environment and alternative and revolutionary ways to understand how would be the city of the future generations.*

The evolutionary path of these ideas or projects culminates, and in certain sense ends, with the new vanguards of the 50's and 60's, where the preconized concepts of town (unlimited) point to the dissolution of the architectural object and of the architecture itself. Becoming the latter and associated city models as the ultimate uncertainties, almost consecrating the other uncertainties that come together in an attempt to understand the phenomena and new trends of the real city. After these expressions, the visionary interest in the new cities of the future starts to fade, due most probably to a growing concern to understand the issues and the effects of the great dynamism of urbanization and the process of metropolis creation.

Eventually, the analysis of this path will provide an opportunity to reinforce the importance and the contribute of ideas and major projects, that even today are considered as the most paradigmatic of the twentieth century, particularly those planned in the 20's and 30's. The value of these contributions as a methodological reference and a research base becomes even more evident under the latest developments, testing new urban models and planning new cities in emerging countries, which seem to point a return to the search of new visions and solutions for the city of the future.

Keywords: New Towns, Urban Utopias in the Twentieth Century, City Design.

Since the beginning of the twentieth century, the history of the city and of the urbanism was particularly marked by ideas and plans of new cities heavily charged with utopic and paradigmatic visions: prototypes unrealized or partially built that unquestionably influenced the urban and architectural cultures and practices, marking the collective memory about the image of the future cities; primordial archetypes, acting as repositories of concepts, intentions or ways of predicting new forms and dimensions of the urban space, alternative and revolutionary perceptions of understanding how it should be the city of the forthcoming generations. In truth, this stage of emerging radical ideas and new towns projects developed since the 19th century, in special during the period 'from the utopia to the garden city' (Spagnoli, 2012, p. 117-138).

Although characterized by solutions not entirely revolutionary, this century ends and turns into a period of experimentation, searching for answers to the problems caused by the fast population growth and by the socio-economic changes occurring in the cities directly involved in the industrialization process, preparing thus the foundations for more ambitious solutions which anticipate a future never imagined before.

It is, however, the first decade of the 20th century that stands out as the turning point. Along with the reformist proposals of Howard, Henard or Wagner, others more mature start emerging, prefiguring new cities based on more consistent and functionally complete projects, such as the industrial city of Tony Garnier, published two years before the end of the decade.

This last proposal was intended to be an alternative expressing the new industrial society, turning into the reference model for the creation of the new industrial cities in the Soviet Union during the 30's. This model is still not as visionary and paradigm as those that will arise in the next two decades, but it paves the way for a more careful and thorough experimentation on the fundamentals of the new urban project and on the application of innovative construction technologies.

Various opinions from the historiography and critics recognize, however, that the Garnier's project was much more than a demonstrative representation (Spagnoli, 2012; Secchi, 2005; Calabi, 2004; Frampton, 2002). The articulated

and hierarchical design of urban spaces, the location of the different functions depending on the infrastructural system and its adaptation to the topography, along with the application of advanced urban planning techniques, have made this project an example of the application of the occupation principles of the city of the future.

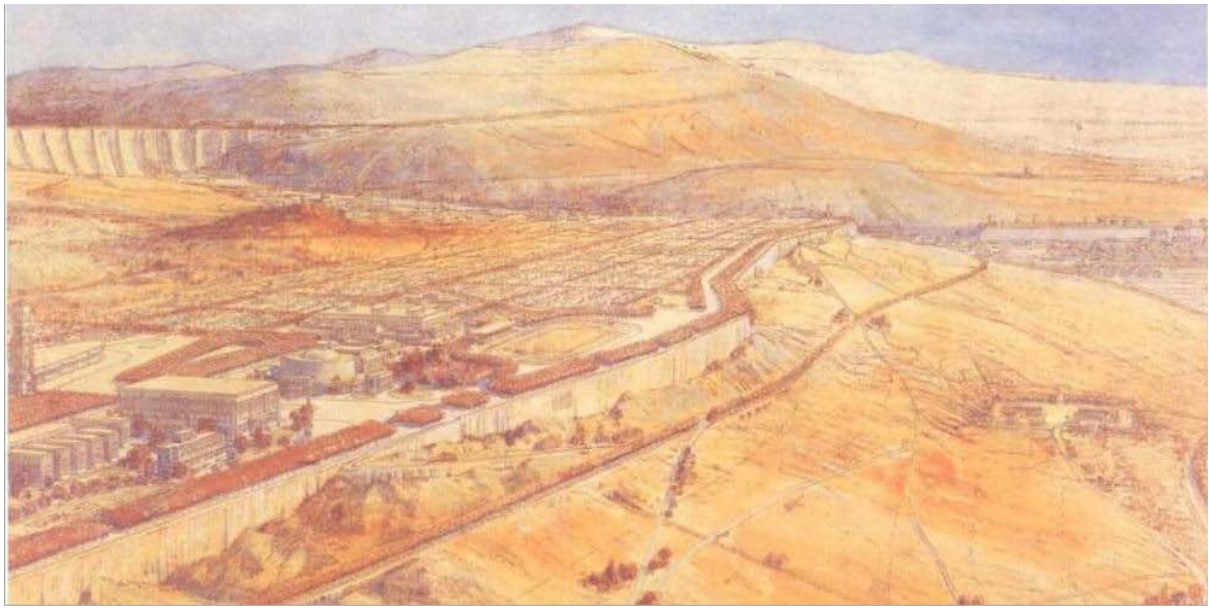

Figure 1. Tony Garnier Industrial City *in* http://cidadeindustrialecidadejardim.blogspot.pt/

The drawings of *Città Nuova* conducted by Antonio Sant'Elia, first presented to the public in an exhibition in Milan in 1914, were more focused on the anticipation of the environments and shapes of the future metropolis. The buildings' height, the overlapping layers of the various modes of transport infrastructures, as well as the absence of any type of preexisting element or reference that could establish a continuity with the past or with the rural and natural environment, restore the image of a radical and totally new urban dimension, mainly concerned with the assignment of a face to the most expressive materiality and functionality of an imminent time, harbinger of major urban, social and technological changes.

However, these drawings cannot clearly translate an organized and comprehensive urban model. They are fragmented and epidermal representations that define a view of the city that does not provide any kind of

relationship between the parts, nor the existence of elements defining the buildings interiors (Costa Meyer, 2013, p. 29), omitting therefore, its connection with the external structures.

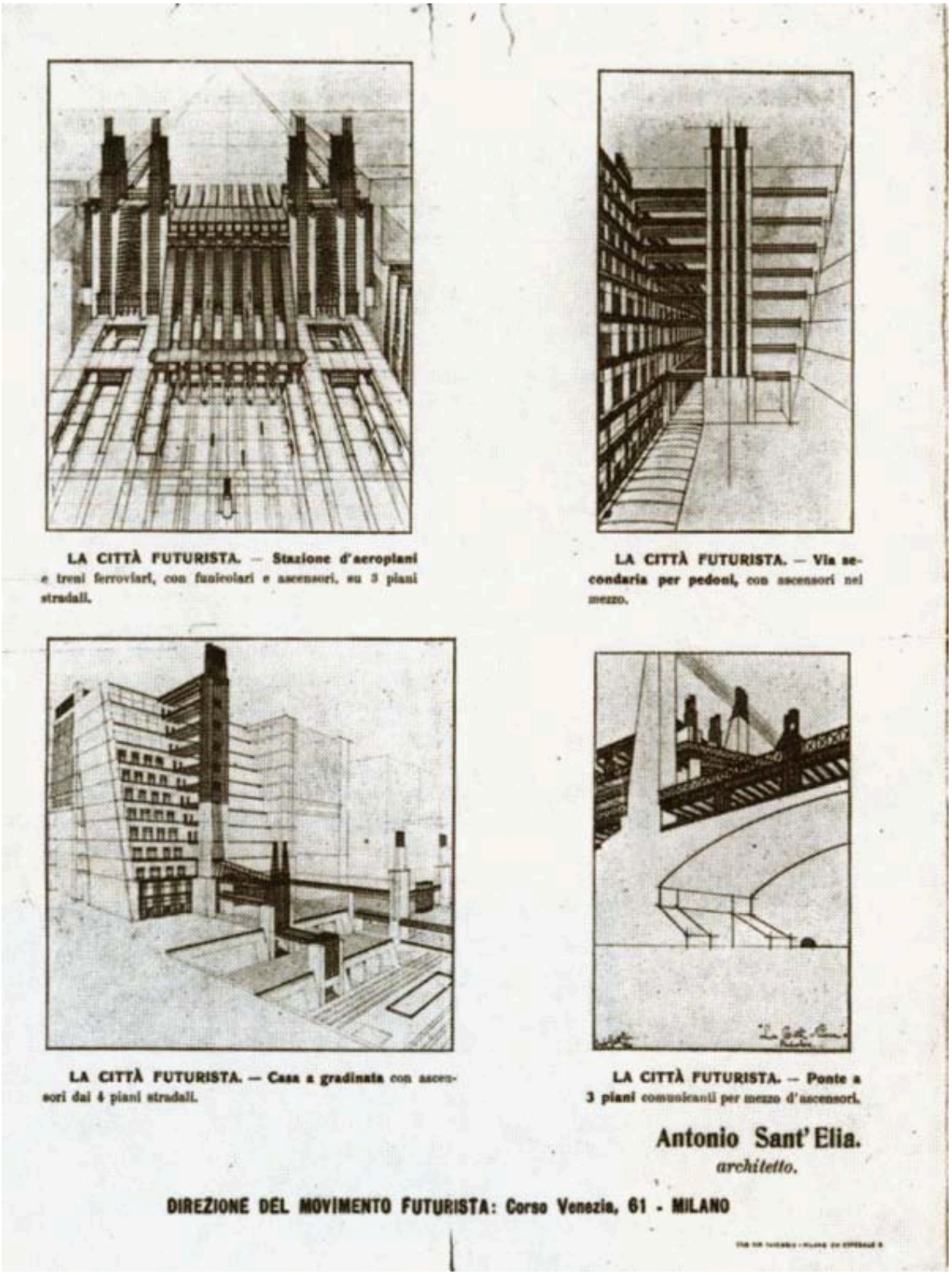

Figure 2. Images from the L*'architettura futurista: Manifesto in* http://lebbeuswoods.wordpress.com/2009/11/02/santelias-words/

A bit like the role played by Hughs Ferris, that tried to build a coherent vision of the future Manhattan (Koolhaas, 2006, p.103), drawing only the shape of the buildings based on the *Zoning Law* of 1916, Sant'Elia merely defined the exterior appearance of architecture, drawing impressive envelopes and urban super-structures, resulting from the connection between the buildings volumes and the communications infrastructure diagrams, thus prefiguring the formal and pictorial paradigms of the *Città Macchina* (Los, 1974) that will later develop everywhere.

The city model designed by Bruno Taut, published in Jena (1919) in *Die Stadtkrone* (the Crown of the City), was less focused on the formal and esthetic values, and perhaps too grasped to the meaning of the project. This model, that emerges under strong influence of the expressionist ideals and theoretical principles of the '*Espirito da utopia'* (Bloch, 1980), proposes itself as an anticipation of the future and as a social idea that rejects any form of power. Following this experiment, already in 1920 Taut will develop other versions, published in the *Alpine Architektur* (*Architecture Alpina*) and in the *Die Auflösung der Städte* (The dissolution of the city).
In this last version, the drawings clearly evidence the philosophical and theoretical determination of this architect about the new way of designing and living the city. The social, political, cultural and architectural aspects are thought as components of a temporal and spatial, long-range territorial project, setting an urban solution that aims to be the point of convergence between utopia and reality, which will later serve as reference for the accomplishment of the famous *Siedlungen*, architectural archetypes and unavoidable references in the construction of the modern city.
Unlike the futurists and rationalists, Taut strives to respect the existing built and natural environments, but refuses the city of the present and adopts a solution that reverses the logic of the traditional occupation. Under these assumptions, he designs a flower-shaped city, integrated in the nature and spreading the center into the territory, in order to define a network of small rural communities,

organized around a complex community space, setting up a model that advocates the inevitable dissolution of the traditional 19th century city.

However, the most profound and radical change occurs between the 20s and 30s, spreading up until the beginning of the Second World War. During this period, a new concept of urban planning rises based on a new conception of life that aims to meet human needs with more rational urban and architectural solutions.

The proposals developed in this time range, continue to maintain a certain charge of utopia, however, this time it is understood not only as a method to anticipate the future or promote the progress, but also as a tool to confront present and past in a critical perspective (Secchi, 2005, p 65) that acquires a concrete dimension and a tangible practical utility.

The *Ville contemporaine de trois milion d'habitant* designed by Le Corbusier in 1922 was one of the first major proposals for the achievement of this utopia. It was an alternative model to the traditional city and, at the same time, a synthesis of the latest urban design and architectural solutions produced at the time or, in other words, a kind of archetype of archetypes.

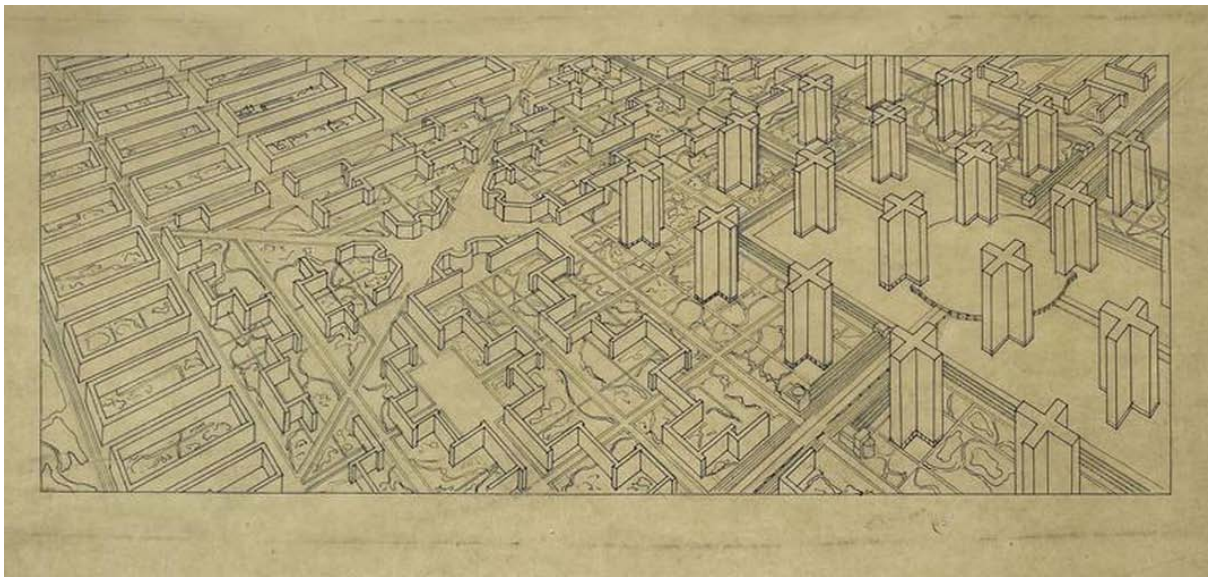

Figure 3. Le Corbusier, Ville de 3 millions d'habitants *in* http://laboratoireurbanismeinsurrectionnel.blogspot.pt/2012/01/m-tafuri-la-crise-de-lutopie-le.html

It will follow variants of this model, like the *Plan Voisin* in 1925, and the *Ville Radieuse* in 1935, as the most advanced and paradigmatic examples demonstrating the validity and applicability of the modern urban planning for any context (Le Corbusier, 1935) being this a dogmatic conviction of its author.
The importance of these models is mainly due to the fact that they pointed the urban planning foundations that allowed understanding the rationalist city. For example, the geometry as the intrinsic rule and synonymous of rigor in the conception and design of the urban and architectural projects; the orthogonal layout as the basic matrix allowing to structure and use the urban space in an efficient and flexible way; the zoning as a technique to manage more rationally and profitably the soil and the relation or separation of the functions; the hierarchy and articulation of the road networks and transport modalities to ensure the connection between the activities and the fast movements from and to anywhere in the city.

The project of the vertical city Hilberseimer, presented in 1924 and included two years later in the publication *Großstadt Architektur* (Hilberseimer, 1927), was also in line with this rational view of the city was. Certainly influenced by the Le Corbusier, by having seen the draft of the contemporary city still under development (Spagnoli, 2012, p.295), Hilberseimer proposes a daring rational solution, designed for cities of high density and dimension. Thus, exploring one of the principles of vertical architecture, the *stratification*, Hilberseimer imagines the overlapp of the functional levels, placing the production and the motor traffic in the intermediate level, the housing in the upper level, horizontally connected by footpaths, and the railway transportation infrastructure in the underground.
Among others, within this rational view may also be included the ideal city *Rush City Reformed* (1928) by the architect Richard Neutra. Behind the austerity of the perspectives that seek to produce the overall image of this new city, which almost emphasize the strong geometric character of the urban structure and the functional centrality of communication infrastructures, there are actually a set of detailed solutions with a great human and rational specificity resulting from a long and hard work.

In fact, as Neutral mentioned in a reflection concerning the rationalization of its first programmatic schemes, the idea of this city *'did not based itself on an abstract or theoretically rigid scheme'*, but *'was rather a series of efforts starting a quarter of century ago, to study the urban problem in a scientific manner, expressing a belief in the wholesome flexibility of city planning'* (Neutra; cit. in Hines, 1994, p. 61). These efforts aimed mainly at resolving concrete issues in the scope of architecture and urban design.

Other interesting and representative experiments from the perspective of the originality and formal and conceptual radicalism of this period were the designs of the Soviet socialism new cities. Developed between the 20s and 30s, they were intended not only to give a fast and practical response to the territorial industrialization policy, but also as an expression of the *Engels* socialist society to overcome the inequalities and the '*contradictions between town and country'* (Kopp, 1987 p.189).

The formation of trends and distinct positions about the principles of formalization and use of the *'socialist city'* originated models of various kinds[1], among which can be highlight the linear for its evident uniqueness.

Examples of this type were the linear development scheme of the "*desurbanists*" and the Leonidov's linear city plan to Magnitogorsk from 1930, being the latter mainly known for being the model that attempted to break the impasse between "*urbanists*" and "*desurbanists"* (Kopp, 1987, p.213).

Applying a solution of continuous parallel tracks, within which were organized the housing settlements and the community facilities using a reticular scheme, Leonidov tries to integrate the city with the surrounding nature, being certain that through this integration the main human activities, including necessarily leisure, could constitute a more connected and organic environment.

However, being somewhat abstract models, they were not built, as happened to the plans of Ernst May groups, who, despite being more practicable, lacked a

[1] The basic models of the constructivism urban development were essentially four: i) nuclear according to the principle of satellite town; ii) linear *desurbanism*, based on the location of the isolated dwellings on *pilotis* in correspondence of the roads that led to the agricultural structures (Kolchoz); iii) diffuse or spread *desurbanism*, comprising a set of isolated dwelling units distributed on the territory; iv) linear parallel strips provided with differentiated uses and interposed between nuclei of primary production.

genuine political consensus. The debate and, above all, were released the basis for equating the issues of urbanism and territorial planning, which until then had never been addressed, at least in scientific terms.

This phase of great creativity and radical ideas about the city, remained somehow interrupted by the Second World War, during which in countries of authoritarian regimes are designed and sometimes executed experiments regarding the *'state urbanism'* (Spagnoli, 2012, p . 333).

After the conflict, the new cycle of radical changes in the way of understanding the city, starts with the avant-garde ideas of the 50s and 60s. Crossing directly or indirectly with the people of *'great generation'* (Godard, 2003; Secchi, 2005)[2], these vanguards begin to contest the principles of the modern city.

On the other hand and against all expectations of its creators and supporters, these principles will initially have a rather limited application, not only in the case of the *New Towns* in the UK, influenced by the garden city models, but also in the French *Villes Nouvelles*, often considered as resulting from technical attitudes or from the central government impositions.

Only the Nordic countries were able to apply and take advantage of the Modern Movement models, either by adopting mechanisms of great public control, or by achieving to reinterpret and adapt them to the site conditions with great skill and sensitivity.

So, along with the renovation or urban expansion projects, intended to rebuild or build new housing in response to a new phase of population growth, emerge visionary and utopian proposals for new cities positioned in a distinct perspective from the linked with the functionalism.

In the mid-50s was born the idea of the *New Babylon* from Constant, affirming itself not only as a political manifesto for the liberation of the worker and against capitalism and its ethnic and economic boundaries, but also as alternative to the

[2] Godard refers to the generation that witnessed the First World War and that having been deeply marked by this event, developed critical and reflective thoughts on the history and possibilities of conferring it different directions. In the other hand, Secchi adds that in this Great Generation also architects and planners took part trying to materialize utopias, designing foundation cities or making a series of projects aiming to demonstrate that it was necessary and possible to introduce new ways of living, alternatives to the cities of the old regime or to the nineteenth century.

project and city of modernist tradition. Assuming itself clearly *'against an idea of green city that most modern architects have adopted (...)*' (1959, 37), Constant envisioned a new way of using time and space, devising the city as a continuous construction, organized by an unlimited public space and composed of architectural spaces that continuously change.

From this period were also the proposals of the Friedman's *space cities*, conceived accordingly to the principles of his *Manifesto of mobile architecture*, presented in 1956 at the X International Congress of Modern Architecture (CIAM) in the city of Dubrovnik. Consisting of a large suspended structure superimposed on the existing city, these proposals intended to turn the space more flexible, predicting dwellings that could be created and modified according to the requirements of its inhabitants and residents.

The great interest in this new type of spatial urbanism by Friedman, certainly influenced the utopians and radical vanguards of the 60s, also known as the age of the mega-structure (Banham, 1980), period when it began to appear urban projects of large multifunctional high technology structures.

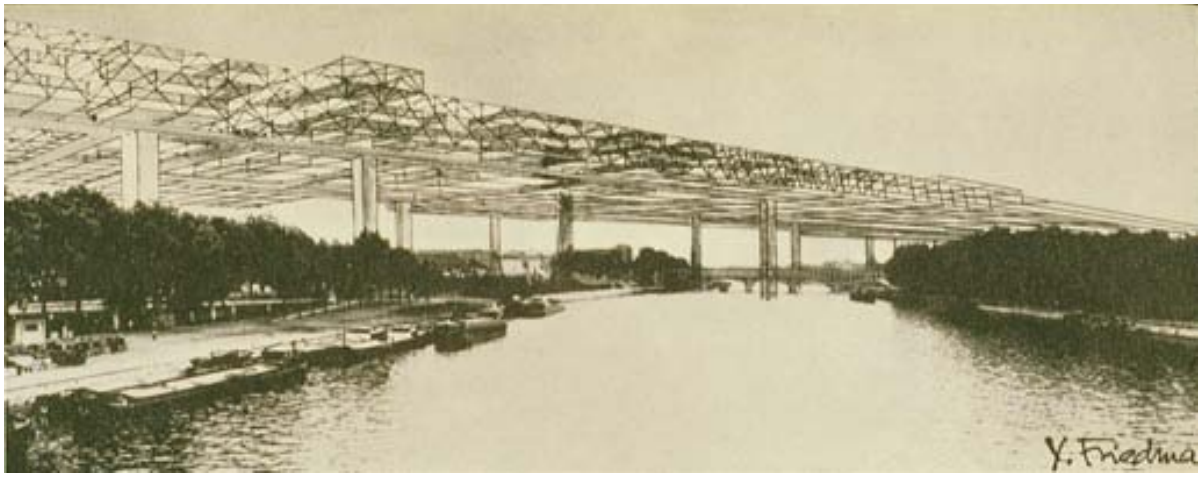

Figure 4. Space city by Yona Friedman (1960) *in* http://movingcities.org/movingmemos/yona-friedman-book-review-oct11/

It is most likely that following Friedman's proposals, and to some extent the ideas launched by Fuller's work, that about a decade later appeared the contributions from the *metabolic* group, whose theoretical principles had already been approached by M. McLuhan, in the mid-50s, with *'The Global Village'*

(McLuhan, Powers, 1989), and projects as the *Plug-in City* and the *Walking City*, developed, respectively, by Cook and Herron from the *Archigram* group.
Dated from 1964 and based on very similar assumptions of the culture of *metabolism*, these projects seemed to evoke and promote again the vision of the futuristic city-machine, which half a century later, thanks to the technological advances, could finally become a reality and at the same time, provide a real alternative to the functionalist modernism.
Like the followers of *metabolism*, the *Archigram* believed in the application of mobility to the different scales of architectural elements, as well in the distinction between fixed and mobile components of architectural and urban structures. This enabled them to devise mega-structures to accommodate components of limited duration, easily replaceable, enabling the city to follow the fast growing economic development.

This phase of visionary and deeply radical ideas will conclude at the end of the 60s with projects that somehow transcend the traditional model of the finite city: "negative" utopias that, having as background the social contestation movements and the manifestations of counterculture, seeking a way of showing the formation of the unlimited city, claiming for the need of a new starting point for the construction of architecture and the city. However, this search will result on producing *manifesto* projects, as the *Monumento Continuo* and the *Non-Stop City*, written respectively by *Superstudio* and *Archizoom*. They will be known not as anticipatory visions of the future, but as radical critiques to the built and imaginary architecture of the modern society (Stauffer, 2008, p. 211), especially to the modern Movement that has not able to predict and deliver effective solutions for the future of the city. In an attempt to embody the spirit of the architectural ideology critique (Tafuri, 1969), the project *Non-Stop City*, the city made of continuous and homogeneous space, will seek to turn the urban space fluid and flexible (Scarponi, 2005) reducing the architectural object to a simple modular element.

This attitude of approval, mass standardization and loss of identity, will mark the beginning of a journey of ontological uncertainty that will lead to the dissolution

of the contemporary city into a multitude of concepts, expressions and different ways of understanding their present and future dimensions. From onwards, the concerns with the new complexities of the urban phenomenon relegate to a secondary position the need to create a new and better order, thus making needless any new visionary impulse for the city of the future.

The reconfiguration of cities and societies by the globalization and the media, the crisis of the *welfare state* models, the awareness that the city can hardly be seen as a *finished work* and, above all, the issues related to the process of urbanization, will guide the urban reflection and practice mainly to the problems associated with the reorganization of the territory, the urban sprawl, the metropolis and the formation of the mega-cities.

It will be approximately from the 90s, after confirming the absence of reference urban models and the crisis of architecture (Gregotti, 1999), generated by the systematic construction highly conditioned by the notion of market and consumption, that will become more evident the importance of a critical review and re-contextualization of the production of modernist culture of the 20th century, in special the contributions developed between the 20s and 30s, which were already heavily criticized by the more rigid postmodernism movement.

Thus, in contrast to the anti-modernist positions, such the ones of Colin Rowe (1994), which through a critical approach aimed to reveal the contradictions of the Modern Movement principles and of the rationalist architecture, there were others, namely those connected with the Dutch school which, not having been influenced by the postmodernism, had already realized the importance of that movement's tradition as a method, projection to the contemporary age and as research base for the typological innovation[3].

The synthesizing in *modern* key the more advanced urban and architectural archetypes, thus shaping a new way of life, begins to be recognized as an

[3] In the symposium organized in 1990 by the University of Delft, *'How is Modern Dutch Architecture?*'' (Bernard, Deen, Grafe, 1990), Koolhaas wanted to impose this title in order to recover the tradition of the Modern Movement, not only to avoid more conservative actions, but also to be understood that this tradition could be used and understood as a methodology for finding a new modernity.

important theoretical contribution and demonstrative of modernism and its figures of the *great generation*. That recognition may not, however, be completed without considering limitations or contradictory aspects, like the orthodoxy of its principles or the scarce interest in the social and economic integration issues, which are undoubtedly fundamental to better understand the teleological value of that contribution.

The importance of this contribution as a methodological reference of anticipation and research base becomes even more evident under the scope of more recent developments that suggest the return to the research for new visions and solutions to the city of the future. Similarly to what happened a century ago, when Sant'Elia turn public for the first time his futuristic designs, the beginning of a new cycle prefiguring unprecedented and deeply radical proposals, may be imminent.

Figure 5. KPF (2010), Meixi Lake Materplan (Changsha, China) in http://www.kpf.com/

The recent experiences of *'urban modeling*' (Spagnoli, 2012, p.600), such as the *ecocities* (who favour the elements like natural free space, the ecological waste treatment systems, the renewable energy sources and the low emission transport systems) or the *greencities* (experimental laboratories for the applicability of the models for the future) already impose themselves as true prototypes of implementation, both for existing, as for the new foundation cities that are being planned in the emerging Asian countries.
As in the proposals that contributed to shape the modern city of the last century, the latest models are experimenting, combining and integrating new paradigms, principles and last generation archetypes in order to find effective innovative solutions. Perhaps, this will be the confirmation that to build the city of the future it is essential, if not mandatory, to recognize the archetypes that it should reuse and integrate to enter in the *'second modernity'* stage (Spagnoli, 2012, p.600), leaving however place for uncertainties as opportunities for reflecting and to the eventualities reserved by uncertainty.

To conclude, it should be remembered that, despite recognizing the importance of the priority suggested by Barnett (2011), when affirming that '*what is needed now is not a new city concept for all purposes, but new ways of integrating the city design with the process of economic and social change and, at the same time, to create a sustainable relationship with nature*', it should not be underestimated the possibility of having new moments of utopia, being these a kind of endogenous phenomenon that is part of the formation and evolution process of the city, as an innate feeling of dissatisfaction that encourages men to improve his living conditions. To make these moments effective anticipation ideas, methodological background instruments, propaedeutic to the this century city, will be also important to remember the warning of Friedman (2000) about the risk and the impossibility contained in the universal utopias, which leads to deduce that their utility and eventual execution depends primarily on the ability to deprive them from any universality claim.

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MODERN HABITAT IN CASABLANCA. APPROPRIATION AND RE-USE

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Abstract

This contribution explores the theme of new modern habitats created between the 1950s and 1960s at Casablanca in Morocco. In particular two case studies will be examined: the Carrieres Centrales neighbourhood designed by Écochard and Candilis, Woods and Bodianski and in greater detail, the Derb Jdid district of Elie Azagury.
These two districts fall into the "large" category of redevelopment and re-urbanization of suburban areas of the city in expansion and occupied by large extensions of the bidonvilles during the post-war period. Interest is focused on the forms and new residential models being presented and suggested by the designers: unity of neighbourhoods, the union of patio-style living units conceived to answer the needs and uses of populations coming from rural settings.
More specifically, this contribution intends to look more closely at the settlement experience provided by Derb Jdid describing the entire planning process through the use of archive studies from the Azagury fund at the IFA in Paris. The processes of appropriation and modification of the dwellings carried out by the inhabitants will also be described; transformations that have affected different levels of scale, from the overall urban to the individual residence.
In describing the whole settlement history of the district, from its original conception up to the current modification processes, the intention is on one hand to reflect on the planning interpretation that the designers gave to the theme of «l'habitat pour le plus grand nombre» in the context of the strong local and identifying character such as North Africa, and on the other hand on the real validity of certain positions taken by the planners themselves and the capacity of design to sustain the motives of time and social changes.

Keywords: Modern Habitat, Appropriation, Re-Use, Morphology and type

Introduction

This project proposes a study for redevelopment of the existing housing situation, with particular reference to the experiences of the immediate post-war habitat settlement in the contexts of northern Africa - specifically in Morocco.

Starting from the 1950s, in the full crisis of the Modernist Movement and straddling the independence of the European North African colonies, numerous designers that were either affiliated to or expressly part of the Team Ten group developed the theme of habitat by placing man, his specificity, living and the quality of living spaces at the centre of the discipline's attention. The relationship between man and his context was explored in depth, along with the permanence of the living cultures of the local rural world and the new trend towards modernity.

The contribution offers the current state of a piece of research in progress.

The research project aims to develop a critical-cognitive platform and methodological analysis for the purpose of creating materials useful for the drawing up of "Manuals for the reclamation of modern habitats", seen as essential tools for the starting of any form of active and shared redevelopment of this significant part of the current building heritage and copyright.

As a matter of fact, modern habitats, which were originally peripheral residential systems and separate from the consolidated historical urban setting, are now to all effects absorbed and incorporated into the city, whose problems and extreme urgency mean that a rethinking is necessary, in terms both of development, inasmuch as they are witness to an active modern legacy, and also in terms of planning and sustainable regeneration, always bearing in mind the aspects of local development and social cohesion.

The study conducted so far looks at two case studies, the neighbourhoods of *Carrieres Centrales* and *Derb Jdid* in Casablanca.

The new quarters

The projects of Michel Écochard[1], from the group ATBAT Africa[2], and Elie Azagury[3], developed as part of the rehabilitation program for slums in the areas of *Carrieres Centrales* and *Derb Jdid* in Casablanca during the years of the heated debate that characterized the CIAM starting from 1953, are a central part of that line of planning research exploring the link between modernity and the specific local elements within the development contexts. These projects open up a critical reflection on the themes of universalism and the rapid modernization of contexts still linked to traditional housing practices and cultures; the projects are developed over a historical period (1951-1958) when Morocco was facing the prospect of independence after nearly 100 years of being a French protectorate, and in which the complex dialectic between modernity and basic needs of the specific context was one of the issues of greatest relevance, urgency and criticality. It is exactly in relation to the problems of the development of large Southern Mediterranean cities (Casablanca, Algiers, Tunis, Tripoli) that we can understand the origins and advancement of the debate about habitats for “le plus grand nombre”. The idea that a single habitat model could be developed, out of which the Habitat Charter could be delineated by CIAM 9 for the construction of entire new quarters, questioned from the outset the very notion of habitat and its more intimate meaning considering man within his environment. Issues of specificity and individuality of man emerged, and this led to a '*conception du logement plus diversifiée, plus en rapport avec une humanité qui est moins réduite à ce qui la réunit biologiquement qu'à ce qui la différencie culturellement […]*' (Bonillo, Massu, Pinson, 2006: 12). It was the first time that the project of housing for vast masses was approached with an eye not only on numbers,

[1] Starting from 1944 M. Écochard, educated as architect, archaeologist and subsequently urbanist in Syria and Lebanon during the French protectorate, embraced Functionalism and the predicament by Le Corbusier. Between 1946 and 1952 he was head of the Planning Office, where he worked on plans which produced a radical disjunction with pre-1949 policies. During his mandate he complied to the practice of zoning as it was predicated by the Athens Chart.

[2] Branch of the French ATBAT, fonde in 1951 in Casablanca. The group included Shadrach Woods, Georges Candilis and the engineer Henri Piot.

[3] Elie Azagury, born in Casablanca in 1918, studied at the École des beaux-arts in Paris between 1937 and 1946 and continued at Atelier Beaudouin, Michel Aimé and Perret. After a few years of collaboration with Erskine’s office in Stockholm, he went back to Casablanca where in the 50’s he contributed to the debates among the Moroccan group within CIAM.

quantity and the fulfilment of *existenz minimum*. Rather, the attention was put on man and his needs as a single individual, with his own specificities and cultural roots linked to a definite identity. The construction of new habitats had to acknowledge the value of the rural populations' habits and uses and to recognise the specificity of housing cultures.

Morphology and type of neighbourhood

The plan designed by Écochard for the requalification of Casablanca's *bidonvilles* envisaged an 8-by-8 meter grid meant to define a low fabric of patio houses articulated into neighbourhood units and to accommodate services (*hamman* and *suk*) and the places of worship in accordance with the living habits of the Muslims and their culture. This is what Écochard himself defined as "l'habitat adapté". In particular, the application of the plan to the area of *Carrières Centrales* was grounded on in the studies conducted by the Planning Office, coordinated by Écochard himself, on the housing cultures that were specific of to the inhabitants, the farmers coming from Berber villages who, in that period, were illegally colonising Casablanca's peripheral quarters. The articulation of patio housing units clustered to form neighbourhood units, as well as adherence to place and climate are the result of deep knowledge of those traditional models. Within the plot made up of the low fabric, three collective residential buildings with a high level development were designed by the ATBAT_Africa group led by Georges Candilis. These buildings, *Sémiramis* and *Nid d'Abeille*, present highly innovative typological solutions that take into account the traditional housing models; the traditional typical Muslim model of the house with patio is reinterpreted, with a solution, from the typological point of view, that is extremely innovative since it sees the development of the patios not on a horizontal but a vertical, or high plane.

When conceiving the habitats *Derb Jdid* for Muslims, even Azagury's line of action can be rightly framed within the cultural trend described above. This is because he grounds his decisions in a reinterpretation of the places and cultures of tradition. Through typological plurality of the residential units and the

morphological organization of each plot he engaged in a relentless search for a degree of specificity and diversity that was translated into unordinary and complex formal systems. The aggregations of volumes concur to providing open spaces which are variously diversified in terms of their dimensions, spatiality and, above all, use. The public space takes on a semi-public character in correspondence with those elements where volumes cloister into C-shapes, accommodating spaces of engagement left to the appropriation by the residents.

On an urban scale, the project conforms to the rules of the *Plan General* d'Emanagement by Écochard responding to the directions it indicates through both the re-affirmation of the 8-by-8 grid and the organization of housing units provided with their own services.

The *plan d'ensemble* of the quarter is profoundly hierarchical in its structure: the Central Avenue, which runs perpendicular to Boulevard de la Grande Ceinture, is the service corridor. The *plan d'ensamble* is composed of three units conceived to be realised in phases. Each of them is provided with its own micro-centrality made of a small square and neighbourhood services such as the school, the primary education centre, the market and some administration buildings. The residential tissues for each unit are differentiated on the basis of their density.

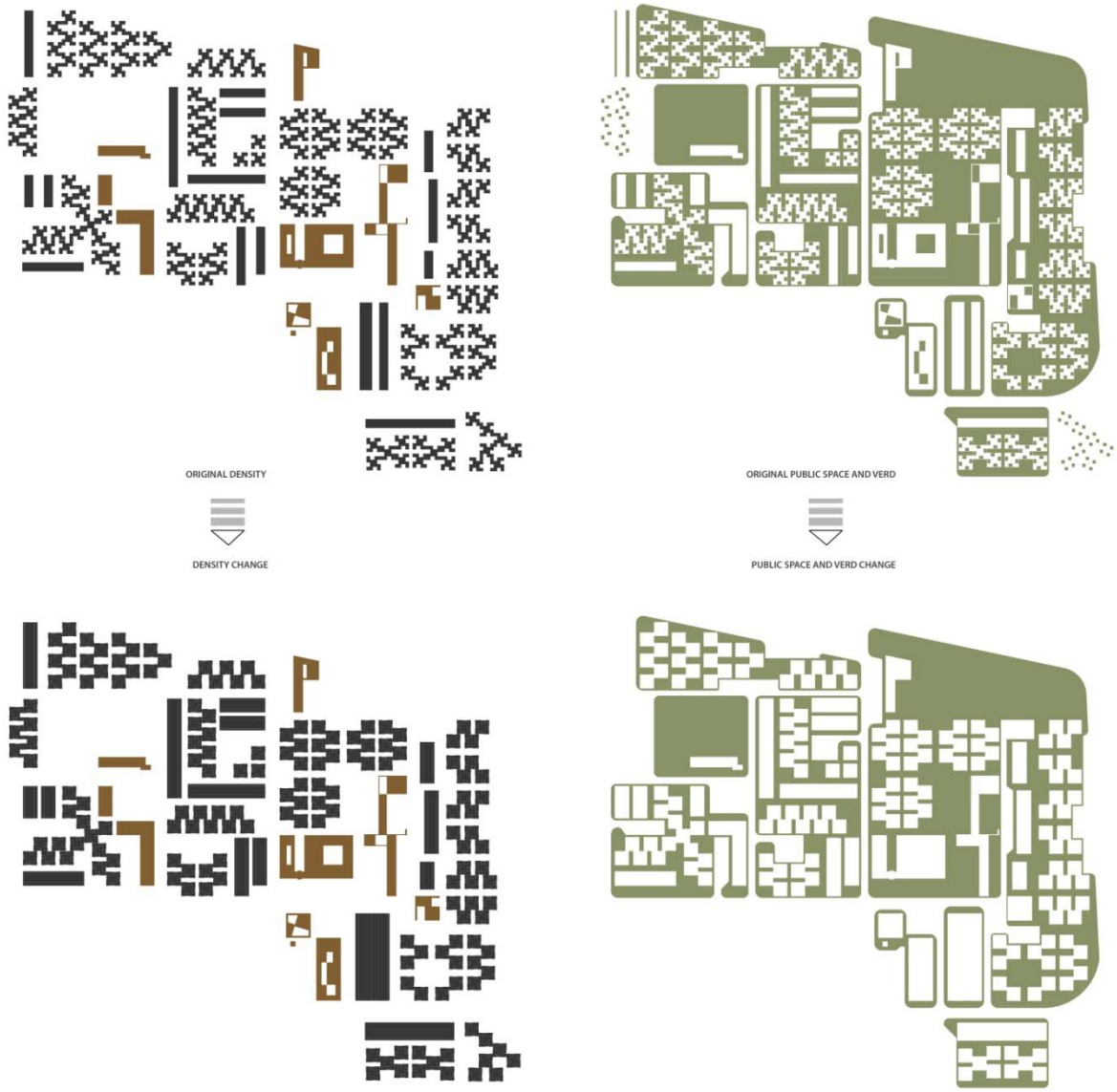

Figure 1. Comparison between original morphology of the project and current status. *Derb Jdid*, Elie Azagury. Density and public space.

Among the different residential models, the collective 4-to-5 storey slabs are matched with the row-housing typology. The patio type is the one which is most deeply investigated in its various configurations and variations.

The classification and construction of an overall taxonomy - for comprehension of the aggregation systems - and of a typological matrix of the units highlight the multiple variations and solutions proposed by Azagury out of the basic type. The variations stem from the need to offer typological plurality and are based on

operations of rotation and mirroring that build up to generating a complex and diversified fabric in the articulation and combination of forms and types.

Elie Azagury, being aware of the design experiences of a few years earlier, while taking inspiration from those same notions of “habitat adaptè” and “habitat evolutif” in which the previous experiences were grounded, shows consciousness and a critical attitude towards the themes of appropriation, modification and growth of the fabric.

Previous experiences – we are referring mainly to Michel Écochard’s project for *Carrières Centrales* – were conceived and realised based on an idea of a single-storey horizontal fabric – with the exception of Candilis, Woods and Bodiansky’s collective multi-storey buildings.

The result of these design decisions, as explained in the words of *Derb Jdid* quarter’s designer himself, was that:

> […] dans tous les cas d'accession à la propriété privée, la transformation du patio, seule source de lumière et de soleil, en local fermé et couvert, et parfois même la surélévation de l'habitation. Pour éviter ces dangers, on admit que tous les types de logement pourraient comporter un étage au-dessus du rez-de-chaussée. Le propriétaire pourrait ainsi construire un logement de deux pièces, cuisine, salle d'eau et patio, puis s'étendre à l'étage dans l'avenir“ (Azagury, 1960, p. 53)

Azagury seeks to interpret and control the processes of spontaneous appropriation that, for instance in the case of *Carrières Centrales*, since the first years after construction had strongly cast shadows over the deterministic approach of Écochard’s project. This approach, which eluded an idea of process as proper of the habitat, probably constituted the main limitation.

Figure 2. The "Felix" type. Elie Azagury. The alterations to the house.

The critical reinterpretation of the processes of appropriation brings the architect to conceive the plan de mass for the first 300 units as based on a conception of an evolving habitat. Single-storey patio types are conceived as apt to modification. This is mainly due to the possibility they offer of accommodating one or two more storeys without compromising neither the healthiness nor the formal and spatial qualities of the house and the public spaces.

In May 1958 the first experimental plot, named “Basile”, was constructed. This type, which is made of eight housing units grouped into two-storey blocks, is inserted within the 8-by-8 meter grid in a pinwheel plan arrangement. The first experimental plot was built as part of a number of identical plots, in plan, which were then aggregated with different modalities and different internal layouts. These types, named “Zoe”,”Arsene”, “Lea”, “Felix”, “Nestor”, concur to create pieces of fabric which represent an example of a complex spatial research. While

inserted within a regular grid and characterised by homogeneity in terms of volumetric relations, these models – all variations of the same type – generate a plurality of spaces of engagement which stand on the divide between public, semi-public and private. Such spaces are defined on the basis of their proximity to the street, to the widening among buildings and the small squares.

Modification and appropriation

The “Zoe” type, in the *Derd Jdid* neighbourhood, is chosen here as an exemplar to show the ways in which the residents have modified their house. In the house of an old woman who benefitted from subsidised rent for her house since ’58 – the woman is today still paying the extremely low rent of 35 Dirham – the space of the patio has been completely filled up with a new volume used as living room of the house. Furthermore, the construction of a staircase inside this space allowed to use also the same extent of surface in the upper level, where an additional room and a small bathroom have been realised.

The case analysed here represents the common practices of transformation of one’s dwelling in relation to the needs coming from an enlargement of the household and to the different usage of space.

Actually, the extreme urgency of re-settlement between ’58 and ’59 from the outset put to the test the effectiveness of the types and of their adaptability and degree of transformability. Solutions of “urgency habitat” were deployed from the beginning. They consisted in the massive construction of the first floors of the “Omer” type in which neither the kitchen nor the toilet or the stairs were built to allow for the occupation of the entire surface of the dwelling by two households. Each of them would have been provided with a bedroom and a small service patio. The “Omer” type, in the way it was codified by the architect, is a row-house organised into two levels. It has a small front patio and a larger one in the back. The plot’s surface is 53 sqm of which 33 sqm are occupied by the house. Like the others, also this type has undergone alterations over time due to

both the re-arrangement of property and the extension of the dwelling which happened mainly upward to reach today five storeys.

The portion of fabric made up from the aggregation of the “Omer” type is today totally altered by modifications that negate, through spontaneous appropriation linked to satisfying direct needs, the rigour and original conception of the complex as it was built. Nonetheless, the current profile facing the street appears complete. The original implant based on a basic constant and repeated module has enabled an evolution of the dwellings on the basis of rules that we could call “conditioned”.

Figure 3. The "Omer" type. *Derb Jdid*, Elie Azagury. The alterations to the house.

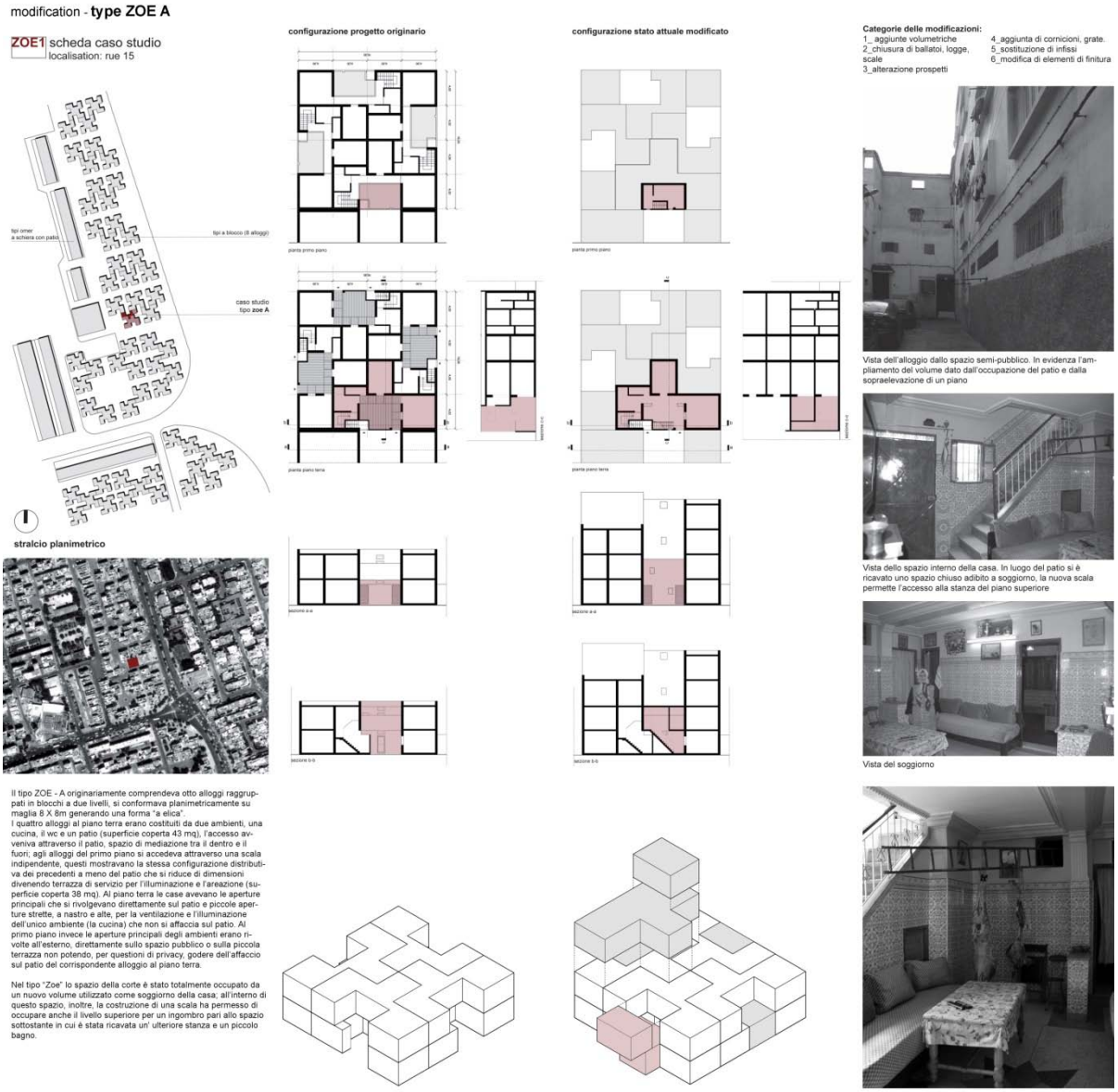

Figure 4. Classification and specification of the categories of alteration. *Derb Jdid*, Elie Azagury. Example of case study analysis.

Even the modification processes throughout the entire *Carrieres Centrales* district involving either the base fabric of the houses with patio designed by Écochard, or the collective buildings designed by Candilis and Woods, are the result of a spontaneous process of appropriation of spaces by residents.

The changes made to the built habitats are significant enough to make them nowadays, after more than half a century, almost unrecognizable.

The base fabric has almost entirely disappeared; a careful analysis of some areas of the district identifies the original layout of the spaces and volumes dating back to the '50s .

This layout formed the basis on which elevations and the additions of up to three storeys in height were developed and extended. In addition to the modifications concerning the volumetric alteration and the relationships between solids and voids, the modifications made to the characters and the architectural language are also significant.

The solutions developed in the 1950s were distinctly modern in character: over an extremely rational base structure, there rose completely white volumes of just one level. The abstract language, essential and considered "poor", today, and over time has been gradually replaced by a spontaneous language, belonging to the customs and the local tastes that often harks back to solutions of an arabesque style of decoration .

Changes to the *Sémiramis* and *Nid d'Abeille* collective housing models are equally complex.

The typological solutions adopted by designers, deeply innovative and at the same time responding to the needs of the climate and traditional ways of living, gave rise to building volumes that precisely because of their shape were from the beginning, subject to modifications. According to abusive practices, gaps in the façades, corresponding to open double-height patios, were completely closed in both the south elevation of the *Nid d'Abeille* building as well as in the symmetrical façades of the *Sémiramis* model.

From presenting an interesting volumetric game of lights and shadows the original façades today appear as a continuous surface, with constantly changing irregular openings and yet meeting the primary need to let light and air into the new occupied liveable rooms.

Figure 5. Modifications to the neighborhood of *Carrières Centrales*, Michel Écochar and George Candilis; from the top of *Nid d'Abeille*'s terrace it is possible to see the raisings up to 4-5 storeys of the original low fabric of patio houses.

Both buildings and especially the new prospects show traces of the old design: the additions are always made with different materials and construction techniques, which enables us to recognize the original sections.

The transformations visible from the outside and from the changing shape of the building are mirrored in the changes made to the internal distribution; the addition of rooms, as well as reflecting a need for new spaces that are often due to an increase in the number of family members, highlights a radical change in the ways of living.

The current configuration of the buildings brings various aspects of the real permanence of the customs and traditional ways of living into question.

The use of the patio, the relationship with the gallery, the semi-public space and all the components designed in accordance with the reinterpretation of

historic/identifying spaces which satisfied the old daily practices, are at present completely altered and sometimes in a constant state of change.

The patio space in the building *Nid d'Abeille* is completely changed because it has been closed and used as a new room of the house (at the total expense of hygienic conditions inside, since they no longer have adequate lighting and ventilation); the relationship with the gallery, especially in *Sémiramis*, is compromised by the closure of the patios; In fact, this change involves the alteration (or rather, the complete elimination) of the gradual transition between the public and private areas through the transition space .

The practices of modification and transformation of the dwellings by the residents involve different levels and scales – from the single dwelling to the urban scale – and also condition and involve various social spheres.

The resident transforms his own house by way of introducing decorative elements that frame the openings. A rich variety of figures and ornaments in the doors, windows and in the volumes, partly in line with the façade and partly projecting outwards, on the one side concur in recalling the necessity and the strong will of the residents to identify themselves with their own house – something which is at the basis of the idea of “habitat for the human being”. On the other side, they put into discussion the coherence of the urban image and feed an uncontrolled process of care of the “self” to the detriment of the collective.

The volumetric alterations, part of the process of transformation, appear more relevant since they operate structurally on the fabric by modifying its density and the relation between mass and void. They completely alter the distribution of the spaces thus building up towards promiscuous and unhealthy situations in the dwellings. Furthermore, the relation of the dwelling to the street is massively upset. The patio - as “threshold” – was meant to represent, on the one hand, the space of engagement among the members of the household within the domestic realm and, on the other, by means of the wall, the first public interface. The original patio, element of mediation between house and street,

disappears and is transformed into an indoor space that, in almost all cases, is used as a living room.

The fabric, originally intended as exclusively residential, is transformed to accommodate, in the lower levels of the dwellings, some small commercial and work spaces. This happens mainly along the main streets. The mix of uses, which is spontaneously activated, generates a character of micro-urbanity. If controlled, this process of modification constitutes a potential for the improvement, re-attribution of meaning and the quality of urban spaces.

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UNCERTAINTY IN CONTEMPORARY URBAN PLANNING CONCEPTS AND METHODS
What we (still) can learn from Garden Cities and New Towns.

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Abstract

Uncertainty is a keyword of the 20th century urban history. Wars, depressions, crisis and social and technological advancements have showed us how deep the changes in economic, political and social systems were responsible for the emergence of urban planning and management practices and how their uncertainties became deep embedded within them.

Uncertainty grew with the increased tendency for fragmented systems – of spaces, society and information, which compose our contemporary "third cities" (Borja 2003) – and with the increased mobility of goods, information and people (Ascher 2010) as conflicts and incompatibilities arose. Several authors created new names for these relational systems in an effort to think beyond the canonical city – Gottmann's Megalopolis, Hall's Disappearing City, Garreau's Edge City, Corboz's Ippercità, Koolhaas' Generic City, Ascher's Metapolis, Sieverts' Zwischenstadt and Indovina's Diffuse City, among others. Concepts and methods are thus being questioned as they do not efficiently respond to these territories' needs: the notion of limits (morphological, administrative, symbolic, disciplinary), the efficacy of formal planning, the hierarchical and linear planning systems, to name a few.

Yet, these concepts still inform planning and urban management practices, making them unresponsive to the uncertainties and opportunities of our contemporary territories. As a response, other concepts are emerging – informality, flexibility, networking, hybrid and intermediary systems – as a better basis for a strategic, incremental and heuristic "new urbanism" (Ascher 1991).

This paper is part of a preliminary PhD research on the flexibility of the instruments of territorial management and their efficacy on regulating the contemporary urban space, and will focus on the uncertainties present on the post-war New Towns experiences and on the influential Garden City movement, and on what contemporary urban planning – as a process still incomplete and open to different interpretations and appropriation processes – can learn from them.

Keywords: New Town, Garden City, contemporary planning, uncertainty, flexibility.

Introduction: of archetypes and uncertainties

Archetype and uncertainty are concepts that lead us to an apparent paradox: on the one hand, archetype indicates a collective elaboration and reproduction of a timeless and persistent "state of affairs"[1]; the latter brings us to an unstable and transitory state.

The theoretical model of Garden City, proposed by Howard in the late nineteenth century, and its application in Letchworth, Welwyn and in the post-war New Towns program in Britain, are privileged case studies to reflect on this apparent paradox and, especially, in its persistence and relevance to contemporary urban planning.

Archetypes are collective images belonging to humanity itself, contents of a collective unconscious, and universal images crafted by the repetition and sedimentation of typical images – therefore, pure formal elements with no content whatsoever (Jung 1976/2002).

It's recognized in contemporary urban planning theory the persistence of an archetype of the city associated with a typical image: a city of oppositions between itself and the country, between concentration and dispersion, and of pre-conceptions regarding the country and the dispersive territories urbanity.

This archetype has thus been compromised in the face of a growing uncertainty on what makes a city today, as many authors are creating new names and models for these types of non-traditional-cities, such as Koolhaas "Generic City" (Koolhaas, Mau, Sigler, & Werlemann, 1995/1998) or, simply, the death of the city and the emergence of the urban (Choay 1994/1999).

In this article we will explore these oppositions, through archetypes and uncertainties, applying them to the post-war New Towns program in Britain but also to what contemporary urban planning – as a still open and incomplete process – can learn from them.

[1] Borrowing an expression from Fernando Gil (Gil 2000, p. 174).

We will first address the opposition city / country and its relation with Howard's Garden City movement, and the sense of that opposition in the contemporary territory; then we will focus on another opposition – concentration / dispersion – looking for its relation with the city and the country, its role on the emergence of the Garden City movement, the (also) sense of that opposition today and its relation with a so-called sense of urbanity; finally, we will describe some practical applications of the New Towns program, their results and uncertainties, trying to understand, on the one hand, if it's possible to fit them into a single model coming from the principles of Garden City movement or if, on the other hand, such singular model does not exist and the New Towns program promoted different results and expressions.

Between city and country's urbanity

The opposition and complementarity between city and country has promoted timeless and cross-disciplinary debates in urban planning.

It remains in the collective imaginary an archetype of the city that no longer corresponds to the reality, a position based on several misconceptions – such as trying to read the territory as an opposition between city and country, two large containers where we still try to fit all the diverse expressions of the contemporary territory. These two objects of opposition once shared the clarity of being distinct and were adequate to reading reality.

Even tough, through history, the city has been built as an opposition to the country, both having different (though somewhat related) economic logics (Busquets 1995, p. 13), the relations between city and country were far from the stability of the archetypes, assuming, throughout the time and the evolution of production methods and patterns, sometimes conflictive, sometimes complementary expressions (Lefebvre 1968/1991).

The Middle Ages expressed this complementary relationship as well as an economic and social interdependence between city and country (Mumford 1961/1966) which would be later compromised by the deep social, economic,

cultural and technological advancements brought by the Industrial Revolution, which created a new reality that was neither city or country, and best known, generically, by urban (Choay 1994/1999, p. 70).

The archetypes of city and country have thus been placed in question by the uncertainty in defining this new reality, identified by several authors from different areas of knowledge involved in an increasingly multidisciplinary review of the territory.

Choay defined urban as a system valid either in the city or in the country, composed of networks and exchanges of material and immaterial systems, and announced the death of the city (Choay 1994/1999) – a death that occurs rather frequently, whenever a quick and noticeable mutation changes the form of the city (Borja, Drnda, Iglesias, Fiori, & Muxí, 2003, p. 23).

The city / country opposition is central to the model of Garden City: Howard's analysis led him to distinguish the advantages and disadvantages of city and country as isolated entities, proposing a third way – neither city nor country, but a combination capable to gather only the positives aspects of both, which he synthesized in the form of the “Three Magnets" diagram (Howard 1898/1902, pp. 15-16).

The Garden City would translate, in this way, an approximation to the values of country life, in a relation with nature that was already sought in medieval times (Mumford 1961/1966, p. 351) and that remains contemporary[2], which we can relate to the still presence of the city and country archetypes, even if displaced from reality: the contemporary man insists on living in an imaginary, pre-industrial and well defined city, opposed to the countryside (Borja et al., 2003, p. 40), repeating meaningless dichotomies – as the city as an historical centre and the country as a typical village (Domingues 2013, p. 36) – and inscribing

[2] As the man still needs a direct and personal contact with Nature (Rémy & Voyé, 1992/1994, p. 47).

them into the basis of his planning systems[3]. Still, signs of contamination are beginning to arise[4], as we recognize city and country integration as a key aspect of innovation in the contemporary city (Soares 2005, p. 18).

Despite the fact that the country can still be read as a place of production (agriculture) and work (landscape) (Lefebvre 1968/1991, p. 67), Howard had already questioned the archetype of the country as a place exclusively linked to agricultural practice (Howard 1898/1902, p. 15) refusing a functional[5] vision of the city even before it achieved notoriety with the Modern Movement, and failed in our contemporary time[6].

But the model of the Garden City exceeded the formal archetype of country life: Howard presented the model as having great potential from the economic view (Howard 1898/1902, p. 32), referring to the effects that a controlled transformation of country in city would bring to the community; a transformation that would be supported by the migration of population towards the Garden Cities which would, by itself, add value to the lands (Howard 1898/1902, p. 28), bring better life quality to the inhabitants and lower their rents[7], and bring closer the cooperation between public and private sectors of society.

The flexibility of this cooperation and the refusal of ideological dichotomies between public and private roles in the development of the city[8] was an important part of Howard's Garden City proposal: Howard argues for a municipal

[3] For example, in the Portuguese planning system, issues related to the obligation of defining an urban perimeter (Ferreira 2004, p. 24) that separates land into rural and urban (Carvalho 2012, p. 8), deeply inscribed as a fundamental principle of the planning system (Soares 2005, p. 21).
[4] In the Portuguese planning system the law "Decreto Regulamentar 11/2009" tries to go beyond the simplistic distinction urban/rural by conceiving rural areas with dispersed urbanity and urban areas with low densities (Carvalho 2012, p. 8).
[5] Howard also conceived the construction of a Garden City as a process during which the buildings could accommodate several functions accordingly to the communities' most urgent needs (Howard 1898/1902, p. 45).
[6] The "culturalistic" and "humanistic" model of the Garden City (Choay 1994/1999, p. 70) contrasts with the functional and parametric model of post-war urbanism (Busquets 1995, p. 95) which was compromised by the excess of division and segregation it has promoted.
[7] The Garden City model was supported by a principle of rate-rent, capable of providing economic sustainability to the community in the long term.
[8] The municipality's monopoly as provider of primary care services could be lost if privates could demonstrate a better capacity to supply them (Howard 1898/1902, p. 27).

initiative without meaning the full municipalisation of the city's industries nor the elimination of private enterprises (Howard 1898/1902, p. 68), positioning himself between socialism and individualism (Howard 1898/1902, p. 69), refusing the inflexibility of the former and the discretion of the latter[9], assuming the variable nature of the services covered by the Garden City as a reflex of its continuous performance assessment (Howard 1898/1902, p. 70).

These issues are of equal relevance when related to the uncertainties of contemporary urban planning, and the urgent need to make it more flexible, as shown by several authors (Portas 1995, p. 32; Soares 2004, p. 101; Borja et al., 2003, pp. 24-25; Silva & Cruz, 1995, p. 45).

Urbanity has ceased to be an exclusive feature of the city (Domingues 2013, p. 37) and its limits are increasingly hard to trace if we intend to do it against a country that no longer matches its archetype and shows no substantial social and cultural difference from the city (Soares 2005, p. 19); the construction of urbanity has also ceased to be the exclusive competence of the public sector, weakened in its ability to intervene[10], to be opened to partnerships with the private sector, to international capital and to a strategic and entrepreneurial management (Moreira 2004, p. 30) considered more effective for its flexibility, adaptability to circumstances and to uncertainties, but still in need of democratic control and transparency (Borja et al., 2003, p. 90) and capable of, by itself, generate new kinds of uncertainty.

The coexistence of the compact and of the dispersed

[9] We can see, for instance, the proposed "semi-municipal" character of the Garden City's market – a private initiative under public control (Howard 1898/1902, p. 76).
[10] Especially the Central Governments, unable to control all and every aspect of the contemporary society (Gonçalves 2007, p. 94).

The concentration of people and activities in the cities allowed them to be, throughout history, clearly delimited against the surrounding fields, dispersed by nature – a boundary that was clear not only in morphological terms, but also in social, cultural and economic ones, translated into a clear correlation between concentration and the notion of centre (Borja et al., 2003, p. 35).

The relative stability of this model was compromised by the technological advancements and urban dynamics unleashed by the Industrial Revolution of the eighteenth and nineteenth centuries, responsible for pronounced migrations from the countryside to the cities – which the Garden City movement and the New Towns program intended to reverse.

The excessive concentration of people and activities in the cities – especially London – lead Howard to propose the Garden City experience. He was not directly criticizing city and country by themselves, but rather the concentration of the former as opposed to the emptiness of the latter, arguing for the need of a new balance (Howard 1898/1902, pp. 10-13).

Thus, more than criticizing the slow persistence of the city and country "formal" archetypes, Howard was criticizing the rapid transformation of economic and social relations and their impact on the territory and their people: poor housing conditions combined with high rents. Garden City was proposed as a response to this problem, a solution that would not only offer better living conditions but also better rents when compared with those practiced in dense urban areas such as London. Instead of concentrating people in tall buildings, Howard intended to disperse them throughout fields and gardens (Howard 1898/1902, p. 54).

The topic of concentration plays, therefore, an important role not only in the Garden City experience but also in the ability to read the contemporary city and the archetype of city itself: urbanity has been frequently associated to concentration and its development and multiplication to growth. Urbanity is being measured in terms of dimensions and of densities (Guerra 1993, p. 106). However, this concentration no longer corresponds to the reality, thanks to the explosion of the compact cities driven by more efficient means of transportation

and communication and by the inability of the Modern Movement ideal to resist to contemporary societies' needs. The dispersion is now recognized as an urban fact, together with concentration, revealing new forms of living and economic and social organization of a discontinuous and fragmented society.

When reading the contemporary territory, especially certain regions of southern Europe such as Ave valley (Portugal) and Veneto (Italy), one finds out that the dichotomy concentration / dispersion is not an option but a reality (Borja et al., 2003, p. 96; Soares 2005, p. 12): the compact city is just one piece of the urban puzzle (Domingues & Silva, 2004, p. 8) and is not, by itself, sign of urbanity[11] or of centre. Diffuse and compact city co-exist and complement themselves, and this tendency grows stronger[12] as more effective means of transport and communication are being developed as they favour, on the one hand, concentration in regional and national metropolises while, on the other hand, they promote punctual or linear forms of dispersion (Choay 1994/1999, p. 83).

We can also see this dichotomy fading in Howard's experience since, on the one hand, he proposed the development of several contained and concentrated networks of Garden Cities dispersed throughout open country, connected with railways, keeping in this way the formal integrity of each Garden City and the green belt surrounding them (Howard 1898/1902, pp. 130-131). Several Garden Cities arranged in networks and articulated with a Central City would become part of a wider territorial arrangement where even London, forced to rebuild itself, would ultimately find its place.

This model of a network of cities would eventually become reality as a set of formal, organized and planned actions[13], as Howard intended, but also as informal responses of a society too complex in its interests, aspirations and

[11] The diffused urbanization does not necessarily imply the concentration of people, and they can still be called "urban" or "citizens" despite living in a dispersed territory where housing, agriculture and work are mixed together (Ferreira & Salgueiro, 2000, p. 181).
[12] Although at different rhythms, with "old towns" becoming dense at a higher pace than diffuse territories (Portas 2007, p. 91).
[13] Such as the New Towns program or the more recent Growth Areas program.

goals, and sufficiently provided with transport and communication means to carry them out. In contemporary urban planning it is argued the need to structure these dispersed centres in networks (Portas 2007, p. 90; Soares 2005, p. 14) to be able to balance territorial differences – not eliminate them – promoting functional complementarity rather than intending to turn dispersion into concentration, because dispersed territories are also signs of urbanity, but of a different kind distinct from the one present in the city's archetype.

Diversity in the New Towns post-war program

The theoretical model of Garden City[14] would (and keeps) inspiring the development of New Towns in different contexts and countries and with different purposes. The success of this model might as well have less to do with formal aspects than it had with the overall project of social reorganization it contained inside its complete town (Choay 1994/1999, p. 80).

The New Towns did not translate into an unique response to an unique problem, but rather into variable responses adapted to the specific objectives and uncertainties of each place and time – although they had several features in common with Howard's proposal, namely the willingness to break up with a problematic reality and to plan from the start the whole future of a community.

The relevance of the themes and issues raised by the New Town experiences have transcended their time and remain contemporary, like the aforementioned relationship between city and country, concentration and dispersion, and others such as the notion of centre and concentric growth, functional self-sufficiency and complementary, autonomy and dependence, planning from scratch versus developing existing settlements, and public and private roles in urban development.

[14] Let us remind that Howard did not specify a design or specific place, but only thoughts and diagrams to be adjusted to specific sites and locations.

We can draw some conclusions on the effective implementation of Howard's model in the New Towns program. The relocation of urban population away from the major urban centres, namely London, turned out to be motivated by the need to solve the housing shortage caused by war bombings in 1940 and 1941 (Osborn 1947, p. 4) which gave rise to the first stage of the New Towns program and their designation around London, following the 1944 Greater London Plan of Sir Patrick Abercrombie. Another stage would come out later on the sixties and seventies, this time concerning more provincial New Towns.

The relationship between city and country in the New Towns is a topic where we can draw some conclusions. Currently the classification of English land between urban[15] and rural is not limited to these two global containers, but rather it extends towards four types of urban and six types of rural land – overcoming the simplistic dichotomy and taking into account other variables such as type of settlement and its location in more or less dispersed contexts (Department for Environment, Food & Rural Affairs 2013).

Most of these New Towns are classified today as city-urban-compact. The New Towns around London as well as the nearest ones to the north are all classified in this way, except for Hemel Hempstead which is part of large urban conurbation of London. The same happens for the New Towns along Birmingham and along the large urban conurbation Manchester-Liverpool, with the exception of Skelmersdale. In the North of England, Newton Aycliffe and Peterlee follow this trend, while Washington is also caught in the context of an urban conurbation. The New Towns are therefore eminently urban and compact, while the city dispersed context (New Town or not) is practically non-existent[16]. Surrounding these New Towns we find a complex area of multiple layers of urbanity and rurality way more complex than the countryside as it was thought by Howard.

[15] The quality of urban is given to continuous built-up areas of more than 10000 inhabitants.
[16] This type of city corresponds only to 0.2% of the whole English territory (Department for Environment, Food & Rural Affairs 2013).

The New Towns experience demonstrated clearly the impossibility of keeping with the numbers proposed by Howard – 32000 inhabitants for a 1000 acres city. The reality surpassed in large scale Howard's intentions, and even the smallest New Towns exceeded those values (Office for National Statistics 2012).

Finally, the urban structure of the New Towns was multiple and varied depending on the particular time, location and dynamics of the program: from a linear expression with a grid more (as in Basildon) or less (as in Hatfield) evident, to a radial expression as in Crawley, Bracknell or Welwyn, to more complex and hybrid states such as Stevenage or Milton Keynes; from punctual green spaces and parks (as in Hatfield and Basildon) to more extensive green areas, such as Milton Keynes and Stevenage; from dispersed industries and warehouses in the city limits (as in Hatfield) to linear concentrations in the city limits as well (as in Basildon) or in the city centre (as in Welwyn).

This diversity is noticeable not only in the New Towns by themselves, but also when we look at the regional level: the New Towns are sometimes surrounded by rural areas, as in most of the New Towns of the first generation around London (which successfully contained it's excessive growth), and are sometimes limited or in the vicinity of a large conurbation, as in Skelmersdale, Warrington and Runcorn, near the extensive built area polarized by Liverpool and Manchester.

Conclusion: the uncertainty of an archetype

Although the planning associated with the New Towns program has managed to pass a clear and emblematic quality of urbanity, central in promoting the image and identity of these places (Department for Communities and Local Government & Department of Planning Oxford Brookes University, 2006, p. 14),

the New Towns program has proved to be multiple in terms of its objectives and applications[17] and uncertain about its results.

It is recognized a greater homogeneity in the planning of the New Towns of the first generation when compared with the latest experiments (Department for Communities and Local Government & Department of Planning Oxford Brookes University, 2006, p. 12), a situation explained by several factors that, throughout time, changed or became more complex, bringing uncertainty (and diversity) to the developments.

The power struggle between public and private sectors came to a clear transformation. If, in the first experiments of the New Towns, the influence of the public sector and power granted to the New Towns Development Corporations was evident, the trend has been towards the dispersion of this power between various entities – local authorities, central government and private companies – making it harder to manage and maintain the newer New Towns (Town and Country Planning Association 2011, p. 29) and yielding an increased dependence on private companies as a way to generate growth (Department for Communities and Local Government & Department of Planning Oxford Brookes University, 2006, p. 13). As the New Towns program evolved, people were already claiming the right for the purchase and possession of their homes, instead of having to rent them (Department for Communities and Local Government & Department of Planning Oxford Brookes University, 2006, p. 11). The impossibility to do this in the early stages of the program has, according to some authors, limited the profile of the New Towns residents (Bennett 2005, p. 8).

The power balance between the public sector multiple organisms was also transformed, especially the relationship between central and local powers. The Garden Cities and New Towns taught us the importance of letting the local

[17] Stevenage, for example, is a completely different experience if compared to Peterborough: a self-sufficient city on the one hand versus an extension of an existing one, on the other (Town and Country Planning Association 2011, p. 8).

community benefit from the management of their own assets in order to re-invest on them for their benefit; the absence of this ability, as advocated by Howard (Howard 1898/1902, pp. 21) has brought fund-raising problems in several New Towns needed for urgent infrastructural renovations (Town and Country Planning Association 2014, pp. 16-17). Thus, the willing to bring planning closer to the communities[18], financial constraints and the difficulty in articulating a centrally-driven New Town designation with local consent (Town and Country Planning Association 2014, p. 11) is leading the Central government to avoid taking the lead role as it once had (Town and Country Planning Association 2011, p. 23). The partnerships between local authorities and privates will therefore assume greater relevance in the next generation of New Towns (Town and Country Planning Association 2011, p. 7), although it's argued to be the responsibility of both local and central powers to gather the conditions for private investment, especially in the beginning of the developments, when the uncertainty is higher (Town and Country Planning Association 2011, p. 25).

The intent of "forging" self-sufficient and balanced communities, as proposed by the New Towns program, was also questioned. Relocating poor urbanized people from London was proven to have cut their strong emotional and social ties (Bennett 2005, p. 7), while the New Towns, with their policy of linking housing to working, excluded everyone who was not suitable to work (Bennett 2005, p. 8).

The belief that a change of environment was enough to solve the problems of the most disadvantaged social classes of the Industrial Revolution also proved to be mistaken (Madge 1962, p. 208): the dispersive nature, low density, functional segregation and spatial monotony of the spaces and buildings in most New Towns ultimately hindered the possibility of creating a community[19] and generated a feeling of alienation (Department for Communities and Local

[18] As implied in the "Localism Act 2011" and in the "General Power of Competence" introduced in its context (Local Government Association 2013).
[19] Low density and functional segregation led to higher commuting, contrary to what the New Towns program advocated.

Government & Department of Planning Oxford Brookes University, 2006, p. 78; Madge 1962, p. 211). It was being realized the impossibility of moving entire neighbourhoods and maintaining their social relations (Madge 1962, p. 211) and that one's response to a place was dependent more on social, economic and community factors that on physical ones (Department for Communities and Local Government & Department of Planning Oxford Brookes University, 2006, p. 78). This explains why contemporary urban planning is increasingly multi-disciplinary.

The sense of isolation and self-sufficiency of the New Towns was also losing its reason to be. This kind of understanding was already present after the first generation of New Towns was completed: although still being required a clear definition of the city and of its limits, it was recognized that from a social and economic point of view this definition made no sense (Madge 1962, pp. 218-219). Today the regional level is gaining special relevance in connecting communities (Bennett 2005, p. 11).

Finally, contemporary urban planning is revealing that a rigid planning model based on inflexible master plans is not adequate to today's territories' needs, and a greater flexibility is necessary (Department for Communities and Local Government & Department of Planning Oxford Brookes University, 2006, p. 14) for planning to accommodate uncertainty and change, adapt to the communities' needs and promote the resilience of places (Town and Country Planning Association 2011, p. 32). The master plan is now understood as part of a process and not as the end product itself (Department for Communities and Local Government & Department of Planning Oxford Brookes University, 2006, p. 79). Partnerships remain today more dispersed, resulting from the diffusion of responsibilities between public and private entities, but are necessary to ensure local democracy and participation (Department for Communities and Local Government & Department of Planning Oxford Brookes University 2006, p. 58).

We are moving towards as increasingly limited planning, questioned by uncertainty to an extent where one can ask if it's still worth it. Our idealistic visions of city and country are changing. More than persistent and timeless,

archetypes are undergoing profound changes and no longer match the reality; and uncertainty appears to be anything but transitory. If we expect to efficiently manage our complex contemporary territories we must find a way to inscribe flexibility into the formal planning system while allowing some extent of responsible informality.

Acknowledgments

This paper is part of the PhD research project "From informality to formal variability – planning and urban management strategies under uncertainty contexts: the municipality of Santo Tirso between the Provisional Regulations and the review of the Municipal Plan" (original title: "Da informalidade à variabilidade formal – estratégias de planeamento e gestão urbana em contextos de incerteza: o município de Santo Tirso entre as Normas Provisórias e a revisão do PDM") which is being financially supported by FCT – Fundação para a Ciência e a Tecnologia – under the QREN-POPH program and the PhD Grant SFRH/BD/86675/2012, and developed in CEAU – Centro de Estudos de Arquitectura e Urbanismo – at the School of Architecture of Porto University.

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HYDROELECTRIC TOWNS IN PORTUGAL

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Abstract

During the 20th century, the production of electricity by hydroelectric methods brought about dramatic modifications in the Portuguese landscape. This paper looks at the work produced by architect Januário Godinho between 1945 and 1964 for the Cávado Hydroelectric Company (HICA), and his design on different levels for the hydroelectric complex on the Cávado River, located in the inland region of Trás-os-Montes in the north of Portugal.

HICA and the architecture of Januário Godinho addresses the relationship between technological development and structural conception, and the use of design on a large-scale landscape to overcome the limits of 'modern architecture'. The disproportionate nexus of scale between the operation itself, the obsession of the Portuguese political body and the ethnographic interests of the intellectuals created a clash that may bring about a new understanding of the facts when looked at in relation to the debate on contemporary planning.

Located at a great distance from major cities, very difficult to get to and with very few, if any, resources available, the structures built by HICA necessitated the creation of a series of small, brand-new urban settlements. New settings were designed, which fell somewhere between the two apparently opposed worlds of the village and the hydroelectric power station. Places with economic, social and cultural dimensions such as houses, schools, churches and other social areas coexisted with workplaces, dams, hydroelectric power stations and control centres. The mixed nature of these activities, which were superimposed on the previously existing low-income agricultural structure, created original landscapes as well as an alternative approach to understanding Portuguese post-war architecture.

The methods used to produce this landscape of infrastructure were plain: political will supported by technical knowledge, resulting in the creation of a layout in which a cultural approach would inform the design. But if we are asking two apparently neutral questions, a third very simple one also emerges. What did the landscape of Cávado look like before the construction process began? How did the technicians and architects bring about its transformation? If we take a look at the architectural production that emerged there, the answer does not seem clear. The question, then, is: what were the models used in the production of this landscape? Can they be found in the midst of the post-war architectural debate?

Keywords: Hydroelectric, Godinho, Regionalism, Architecture

"*It is not enough to copy and combine elements brought from here and there, fitting the description of whoever you like, in order to try to create architecture*."[1]

Introduction

In 1944, law number 2002 on the electrification of the country, conceived by Ferreira Dias (1900-1966), established the framework for the production, transport and distribution of electricity in Portugal. In July 1945 the government announced its policy on large hydroelectric projects, and created the entities needed - the Zêzere Hydroelectric Company (Hidroeléctrica do Zêzere - HEZ) and the Cávado Hydroelectric Company (Hidroeléctrica do Cávado - HICA) - to embark on the ambitious programme of electrification of the country.

This operation, given Portugal's past experience with hydroelectricity, represented a substantial leap in both quantitative and qualitative terms relative to size and complexity of the projects, requiring a depth of knowledge and availability of means hitherto unseen in a Portuguese context. (LUCENA, 2004)

Although having scant prior experience in this field, the companies advanced immediately on the construction of large dams on Portugal's major rivers. This process, which was not uneventful, came to be a part of the history of modern architecture in Portugal.

HICA was created for the purpose of bringing to fruition the hydroelectric development of the Cávado-Rabagão basin system[2], considered to be the second

[1] LINO, Raul, A nossa casa, Apontamentos sobre o bom gôsto na construção das casas simples [our house, notes on good taste in the construction of basic houses], Atlântida, 2ºedição, p.75

[2] The Cávado is one of four rivers whose course lies entirely in Portugal, with its source in the Larouco mountain at an altitude of 1527 metres, and running in a north-easterly/south-easterly direction for 129 Km before finally emptying into the Atlantic Ocean at Esposende. Its hydrographic basin covers an area of 1589 Km2 and is bordered by the mountains of Larouco, Gerês, Barrosos and Cabreira.

largest hydrographic basin for the potential production of energy in Portugal.[3] Its dams and power stations, spread throughout the valleys of the Cávado river and its tributaries, were located in the Province of Entre-Douro-e-Minho in the North-West of Portugal, in the geographical region of the North Atlantic (RIBEIRO, 1991, p.145). This region is characterized by the rugged peaks and flat summits of the Peneda, Soajo, Amarela and Gerês mountain ranges, its fracture valleys and young slopes being home to the sources of the rivers Minho, Lima, Cávado, Homem and Ave (BRITO, 1994, P.49).

The high rainfall registered in the mountainous part of the course of the Cávado allowed for the construction, on this river and its tributaries, of one of the largest groups of dams in the country, with HICA planning and building five dams at: Venda Nova (1951), Salamonde (1953), Caniçada (1955), Paradela (1958) and Alto Rabagão (1964).

The locations chosen for the construction of these dams, far from the principal urban centres, were not, however, completely uninhabited. Despite difficulties of climate and topography, the region was marked throughout by a strong human presence, a fact confirmed by several studies carried out at the time.

The essentially mountainous location, and the way of life that characterized the economic reality and social life of the resident communities (OLIVEIRA, GALHANO, 1992, p.130), led to an economic system based on two main activities: cattle-grazing and agriculture. During the first half of the 20th century those activities, which determined the type of settlements that existed in the interior of the country, were the subject of a number of studies. Working with materials that were distinct from each other, the groups of geographers, ethnologists, engineers and architects each pursued a similar objective: a study of the culture of inland Portugal, its people and its traditional buildings. With similar methods of compiling the data that was to be used to describe and interpret the material collected, these different groups were able to construct landscapes that could be described, inhabited, analysed and given form.

Between 1938 and 1939, geographer Orlando Ribeiro (1911-1997) published his Survey of Regional Geography (Inquérito de Geografia Regional 1938) and

[3] The hydrographic basin of the Douro river is the largest, but dependence on Spain caused construction at this site to be delayed, with the state first opting to proceed with developments on the rivers Cávado and Zêzere.

Survey of Rural Habitats (Inquérito do Habitat Rural 1939). Between 1942 and 1947 it was the turn of the agricultural scientists to publish their Survey on Rural Housing (Inquérito à Habitação Rural)[4]. Between the 1940s and 1960s several articles were published in specialist journals on the work of anthropologist Ernesto Veiga de Oliveira (1910-1990) who worked with ethnographer Fernando Galhano (1904-1995)[5] and, in 1961, it was the turn of the architects, with their publication of a Survey on Portuguese Regional Architecture (Inquérito à Arquitectura Regional Portuguesa).

Reading these documents confirms "...*the renewed interest in local traditions that lay behind the enthusiasm with which [the studies] were carried out*..." (COSTA, 1980, p.23) and permits understanding of the practices used by the different teams in the collection and recording of information. These 4 examples represent different ways of looking at the land, the interest in rural settlement, the attention paid to poverty, and to the modern features and productive role of popular architecture, translating into the different viewpoints that inform those distinct ways of seeing the landscape.

These studies allow us to see that up to the 1950s when the dams began to be constructed, the landscape had remained virtually unaltered (RIBEIRO, 1995, p.294) with the resident populations and their rural lifestyles being the main protagonists in the long and subtle process of the construction of those landscapes (DOMINGUES, 2001, p, 59).

For the construction of the dams and all the associated infrastructure, HICA had to find skilled personnel wherever it could, bringing them to the construction sites and, later, to the power stations. This need for personnel resulted in the

[4] Two volumes were published. At the end of the 1940s, the publication of the third volume of the Survey on Rural Housing carried out by the agricultural scientists was stopped by the Estado Novo, due to its overly negative view of the conditions of rural housing. This third volume was published in 2013 by the Universidade técnica de Lisboa, Inquérito à habitação rural, Lisboa, UTL, 2013

[5] During this period, many studies carried out by anthropologists were published sporadically in different specialist magazines. It is only in more recent times that these have been compiled for publication. Such is the case with the work carried out by Ernesto Veiga de Oliveira and Fernando Galhano, "Construções Primitivas em Portugal" [primitive constructions in Portugal], Lisboa, Dom Quixote, 1988 and "Arquitectura Tradicional Portuguesa" [traditional Portuguese architecture], Lisboa, Dom Quixote, 1992. Two important studies on the North of Portugal, directed by Jorge Dias (1907-1973), were published in those years, "Vilarinho das Furnas, Uma aldeia comunitária" [Vilarinho das Furnas, a community village], 1948 and Rio de Onor, Comunitarismo agro-pastoril [Rio de Onor, agro-pastoral communitarianism], 1953.

movement, sometimes over long distances, of large numbers of workers of all levels who had to take sudden leave of their homelands, leaving behind their families, friends and interests. "*These workers found themselves, all of a sudden, in the middle of unknown terrain, where everything was new to them: the work itself, a waterway that was uninhabited, the habits and traditions of a region, even the language itself...*"[6] Adaptation to a new reality was made worse by the diverse nature of the personnel involved, from upper-management staff, with their university and higher-level studies who were employed to work in the power stations, to the most humble of unskilled workers, who had only the most basic levels of education and were very often illiterate, who lived and worked on the construction sites. The former consisted of a smaller group of personnel with permanent positions, in locations where the quantity of unskilled labour was small. On the construction sites however the number of workers was much larger, and they were mostly working on fixed-term contracts for a variety of different employers. In this group, levels of unskilled or low-level skills were high. The placement of these workers in far-away locations which did not have suitable living conditions meant that different types of accommodation had to be built. During the time that construction work was under way, the workers lived in pre-fabricated huts next to the construction sites. For the employees at the power stations, the company, in line with the social model in use at the time by many large industries, called on professionals – architects – to design the settlements that would act as living quarters and small urban centres.[7] Located next to the power stations, these centres reconfigured a larger industrial landscape in which their presence is seen as being equally relevant and as important as the power stations and the dams.

When it came to the planning and design of the buildings for the settlements of Venda Nova, Salamonde and Caniçada, HICA worked with outside architect Januário Godinho. The final settlement, in Pisões, Alto Rabagão, was designed by the company's staff architects, with the majority of projects being attributed

[6] Minutes from the debate held by Hica in 1957 "Problemas sociais inerentes a uma grande empresa hidroeléctrica" [social problems inherent to a large hydroelectric company] ATVN. p.(2.6) 6

[7] See also on this subject: Deolinda Folgado, O lugar da industria no território, in A arquitectura da industria [the architecture of industry], 1925-1965, Registo Docomomo Ibérico, Barcelona, Actar, 2006, pp.80-90

to João Castelo Branco.[8] The Pousada of Pisões, the only building of the group designed by Januário Godinho, was the last building that this architect designed for HICA.

To house the personnel who would be in charge of running the Vila Nova power station, HICA built, next to the power station, a small group of houses, a Pousada - hostel and some supporting buildings.

The settlement was placed on a hillside on the left side of the Cávado river, around 800m from the power station building, facing the future reservoir of the Salamonde dam, the second to be created by HICA. In January, Januário Godinho presented *"... detailed plans for the houses to be built in the settlement attached to the power station, with the Board having definitively chosen the types of houses for managers and workers... "*[9]

In Salamonde, with the experience gained from work on Venda Nova, HICA was already aware of the need for creating accommodation at the site of the next dam for technicians and workers to live in while construction work was taking place on the dam and related projects. By planning for these to be definitive structures, HICA could later use them to house the employees who would be running the power station.

Once the locations of the dam and power station were finalized, HICA engineers decided on the siting of the dwellings, choosing the south bank of the Cávado river, upstream from the dam on a south-west facing hillside, which would be reached by the new access road built for the dam. In contrast to what had happened relative to the settlement of Venda Nova, which had involved a lot of indecision and a variety of locations discussed for the building work, in Salamonde, "...*the need to locate the installations close to the work and to provide the appropriate exposure, dictated the choice of location and the boundaries of the area to be occupied*."[10]

The proposal highlighted three main objectives: the location of the buildings at higher elevations, non-interference with the sparse vegetation that existed, and the choice of views to the south and west rather than towards the future

[8] In Paradela however, there was no need to build a settlement, given that the water of the dam at that level went to the power station at Venda Nova where it then entered the turbine.
[9] Minutes no. 182, of 19 January 1949, AHME, ARCAHICA. p.2
[10] Project brief, installations for the dam at Salamonde, signed by the chief engineer of the civil engineering department, 20 June 1950, ATEDP, PRT-1944-00004. p.1

reservoir which would mean that the houses would have to be turned to face north.

In the plans that Godinho drew up, the houses - 10 in total - were split into two groups adapted to the slope of the terrain. The detached buildings rise out of the terrain in order to make best use of the landscape, their main façades facing south/west, to take in views of the valley. Lower down, the other façades nestle into the hillside or rest on granite walls, a solution identical to the one found for the houses in the settlement of the Venda Nova power station. The main road, which goes around the settlement, terminates at the hostel building, and from it radiate a number of short paths providing access to the houses. Clearly separate from the main road, the houses have a special positioning in relation to the new topography and exposure to the sun.

The process of building the Caniçada dam turned out to be very similar to that of Salamonde. The type of dam that was chosen, the subterranean nature of the power station and the proximity between the different sections were all points that were adopted in the same way for Caniçada.

The engineers decided that the site should be very close to the dam and that it should occupy as small an area as possible[11], indicating as a suitable location the land next to the EN 308 road, downstream from the reservoir, on the south-facing hillside.

Following similar lines to the work already carried out, the general building plans envisioned for the same site not only the definitive buildings, but also those that were temporary and could be taken down.

The proximity of the buildings destined for accommodation to the towns of Gerês and Amares meant that in this case fewer houses were planned when compared to previous levels of the hydroelectric system, and that there would also be no need for a Pousada.[12] As these nearby locations were served by schools and chapels, these were not included in the plans made by HICA for the settlement

[11] The high value of the land next to the dam at Caniçada made for difficult negotiations with the locals who lived in the villages that would be affected by the construction of that section of the hydroelectric system. The expropriation of land needed for the section at Caniçada was, due to the size and the quality of the land to be purchased, a problem that would force HICA to spend a much greater sum of money for the same purpose than had been previously spent at the other sites.

[12] Minutes no. 333, 20 November 1951, AHME, ARCAHICA, G 1.1.1-2. p.1

at Caniçada, which was thereby reduced to a small collection of houses that was spread along the main road.

Figure 1. Terraced houses belonging to the 1st phase constructed at the Vila Nova settlement, 1951 – Photography Alvão, Archive da EDP, Porto

The types of house chosen for permanent housing in the settlement were versions of type B and C houses designed 2 years previously for the settlement at Vila Nova. The solutions found for their interior areas are practically identical to those of the houses at Vila Nova, with differences being visible only in the relationships that the houses established with the landscape.

In line with the times, the houses were positioned in accordance with a social hierarchy defined by HICA, with the first group of houses, located in the quietest area and having the best road access, aimed at those of a managerial level.

The materials and the language used were the same as those used in the workers housing settlements at Salamonde and Vila Nova: tiled, gabled roofs, plastered walls, visible granite basements, and window frames and blinds in wood.

Construction work on the 5th level of the hydroelectric system was the largest project that HICA carried out. At one point during construction, the site at Alto Rabagão had over 4,000 people at work, who together with their families led to a total resident population of over 12,000.[13]

[13] Report, Balance Sheet and Opinion of the Supervisory Board. HICA S.A.R.L. Financial year nineteen, 1964. AHME. p.15

In 1958, the first general plans were made for the installations that were to become part of the large construction site, which took the name of the nearest location, Pisões. With the experience obtained on previous levels of the hydroelectric system, and the large number of workers expected for the construction site, the installations were divided into two types.

Some were temporary, for use during construction, and others, more permanent, would be used during construction and would then make up the definitive settlement for the workers who would be operating the hydroelectric power station.

The general plans for the two groups of buildings were finished between May and July 1958. The temporary buildings were decided on first, to be located on a hillside on the right-hand-side of the river next to the dam and the power station, close to Km 117 of national road E.N.103, between Braga and Chaves, near Pisões.[14] Permanent buildings were decided on during a second stage, to be located on the same hillside, in an area that was higher and flatter.

As well as planning for different types of dwelling and dormitories, a host of provisional supporting services were also included, such as schools, a hospital, a social centre, a cinema, a chapel and a shopping area.[15] As had already happened previously on construction sites at previous levels, several of those installations, which were prefabricated, were transferred from the site at Paradela once construction work at that location had come to an end.

The plans for the settlement at Pisões followed a similar pattern to the previous ones. Located on a hillside sloping downwards N-S towards the reservoir and the dam, it included a series of detached and terraced houses as well as a group of facilities, in an area of over 8 hectares.

At the end of 1958, as well as the settlement built for the future permanent staff of the power station, containing 40 detached houses, there were also 349

[14] The parish of Vila da Ponte in the municipality of Montalegre.

[15] The general plans for accommodation and installations of 09/05/1958 stated: 1 Dormitory for higher-level personnel, 1 Dormitory for managers, 1 B1 House, 3 B Houses, 1 Bc House, 10 C Houses, 3 Cc Houses, 1 I House, 6 E Houses, 6 Ec Houses, 4 Rows of 4 D Houses, 8 Rows of of 2 L houses, 1 Row of 2 Lc houses, 1 L' house, 1 School with two adjoining rooms, 1 Porch – Garage, 1 Dormitory for auxiliary staff, 2 Dormitories for specialist staff, 2 Shower blocks, 75 Rows of 4 houses for workers, 1 Public washing tank, 1 School with 2 rooms and a canteen, 1 Dormitory for 40 workers, 1 Dormitory for 80 workers, 1 Kitchen with oven – refectory, 1 General kitchen – refectory, 1 Cooperative, 1 Covered porch area, for commerce, 1 National Guard post, 1 Social Centre for workers, 1 Hospital, 1 General Office, 1 Laboratory, 1 Warehouse.

houses and 29 dormitories being built, with a total capacity to deal with around 1400 workers and salaried staff.[16] They also built a chapel, schools, recreation centres, refectories, canteens, a market, shower blocks and a permanent medical centre.

The construction of dams and infrastructure for the transportation of energy, firmly founded within a modern culture, determined the large-scale transformation of *place* in a process of appropriation of the existing landscape. The terrain taken over by HICA led to the transformation of nature by the collective (COSGROVE'S, 1984), establishing places in which the vision was guided by the new representations of space, as well as by new practice and local usage.

The settlements created by HICA were notable for their social programmes, developed in accordance with hierarchical levels. When the design of the settlements was being developed, no thought at all was given to the relationship between the new inhabitants and the existing populations. Those villages next to the dams which had not been submerged by the reservoirs rarely received any sort of benefit as a result of their proximity to these constructions. Ancestral habits, skills and lifestyles had nothing whatsoever to do with the modern settlements that HICA built for its workers.

A dichotomy that was also reflected in the architecture itself. In all the settlements, the groups of houses were laid out so as to adapt themselves to the terrain, with optimum conditions relative to sun exposure and direction which the houses faced being taken into consideration. An integration into the landscape that was often the result of the movement of large quantities of earth in order to transform the very steep hillsides into terraces against which the houses could lean.

The types of houses built, closely linked to the type of settlement, were not very varied, being designed to meet the specific needs of their inhabitants. Each settlement consisted of two or three types of house, with one or two floors, with variations mostly in relation to number of bedrooms and in the relationship

[16] Report, Balance Sheet and Opinion of the Supervisory Board. HICA S.A.R.L. Financial year thirteen, 1958. AHME. p.15

between the social areas of the house: individual for houses aimed at managers, and shared for the remaining employees. The centre of the settlements were generally devoted to supporting infrastructure: The 'Centre for happiness at work', the chapel, the market and the Pousada.

In all the settlements "...*there was a series of buildings that demonstrated a relationship of analogous form and function*..." (ARGAN, 2008 [1963]: 269) The houses designed by Januário Godinho followed rules that defined a model which, with few alterations, was used for all the different inhabitants and different settlements. The types of houses chosen for Vila Nova were, with only minor alterations, used in Salamonde and in Caniçada. In Pisões, despite the fact that plans were drawn up by a different architect, the adoption of those same solutions can be clearly seen.

Receptive to the idea of uniformity in the built environment, Januário Godinho worked with the materials he had, taking as a foundation the relationship between financial constraints and natural possibilities.

The buildings that were constructed do not bear any resemblance to the rudimentary buildings that existed in the surrounding villages. Stonework, in granite or schist depending on the locations, and thatched roofs, common in that area, are very distant from the systems of construction used in the new settlements, which were motivated by economics and the need for dwellings that could be easily reproduced. Concrete posts and beams, voided concrete slabs, walls in brick or granite - when it was necessary to raise the basements of the buildings - and tiled roofs resting on wooden structures. The technology and construction processes used to build the power stations and dams were used purposefully, though on a more subtle level, in the building of the settlements.

Figure 2. Interior of a house in the settlement of Vila Nova, April 1952 – Photography Alvão, Archive da EDP, Porto.

The architecture of the HICA settlements is not "...*merely a question relative to the use of the materials most available locally, or of copying any simple form of construction used, for want of anything better, by our ancestors of the last one or two centuries. Its regional forms are those that are best suited to real-life conditions and which reveal themselves to be the most successful at allowing people to feel at home and in their own environment: not limiting itself to merely using the resources of the soil, it reflects, more than anything, cultural conditions...*" (MUNFORD, 1941: p.23)

The settlements of Venda Nova, Salamonde and Caniçada, designed by Godinho display "...*his feeling for place and access to a healthy belief in the value of experience which is seen in the choice of materials, the inflections and outlines of the spaces, in the relationships of spaces to landscape*" (PORTAS, 1987:136).

Where before there was wasteland, hills and mountains, came houses, facilities and roads, all to accommodate the new communities who had come from so far to be there. It was in this context that Januário Godinho worked. His architecture did not seek to mimic pre-existing construction, instead, everything was new. There was no intention of placing the new settlements within the framework of the other villages, their locations were chosen for reasons of function and operability, and this also had to apply to the different dwellings and facilities which made up the settlements. The quality of the architecture that Januário Godinho provided for HICA can be found in the way in which he etched

the images of an architecture, which he wrote into the existing landscape and which is not rural and was never intended to be so, onto the collective imagination.

Acknowledgements

This work was carried out at CEAA | Centro de Estudos Arnaldo Araújo at ESAP, and was financed by the Portuguese government via the FCT – the Portuguese national funding agency for science, research and technology, as part of the PEst-OE/EAT/UI4041/2014 strategic project.

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BETWEEN GLOBAL TURBULENCES AND LOCAL MANNERS
The multiple lives of the Bata Shoe Company satellite towns

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Abstract

Following the spectacular growth of the Bata Shoe Company and the transformation of its home town, Zlín (Czech Republic) into a field of spatial and social experimentation, the enterprise began a strategy of decentralization and global expansion which lead to the replication of an urban and community model in a series of modern ideal industrial satellite towns, built between the years 1930 and 1945 around the globe. This network of cities was split up by force after the World War II; in their maturity, the individual towns have been exposed to the multiplicity of realities that resulted in the post-war geopolitical landscape. Remaining on either side of the Iron Curtain, some cities were still part of the Bata Company, whereas the Communists nationalized some others; some struggled in advanced economies, meanwhile some others thrived in developing countries.

The comparative and systematic study of the network of Bata satellite towns, built in an unprecedented global scale with a strict design consistency in a relatively short period of time, allows for the construction of a comprehensive evaluation of the different lives of a prototypical urban idea, revealing timeless trends and differentiating features that reveal new directions for the critical reformulation of the idea of a company town, with a renewed relationship between design, labour, and capital.

Keywords: Zlín, Bata, company towns, ideal industrial towns, interwar urbanism.

Introduction

In the context of rapid growth in the countries of the Global South, industrial development, and the exploitation of economical opportunities, labour or raw materials, do not come together with a re-imagination of the physical environment in which capital operates, or with a careful long-term community or economical planning, not even with achieving decent working conditions. Although company towns are seen, often with good reasons, as totalizing environments for the control and exploitation of labour, the truth is that in some cases there was a higher ideal behind their pragmatism and efficacy, one that aimed to improve the living conditions of the workers by redesigning their environment. The urban legacy of the Bata Shoe Company is an incredible precedent, one that balances design consistency with a multiplicity of formal variations, geographies, and histories. Hence it seems reasonable to think that a comprehensive view on them offers the possibility of extracting constructive lessons on issues such as urban resilience and sustainability of new towns.

In its first section, this paper will present an introduction to the history of the Bata Shoe Company and the subsequent urban transformation of its hometown, Zlín (Czech Republic[1]). The project of systematization and replication of the urban model developed in a series of industrial satellites deployed globally in the 1930-40's will be described afterwards. The life of these towns in the post-war will be the focus of the next part; a general evaluation and the description of some specific cases will reveal successful achievements and shared problematic features[2]. Finally, the concluding paragraphs will make a case for the need of learning from cases like Bata and, through policy and design standards, rethinking the role of corporations in the construction of the built environment.

[1] Until the end of the World War One, Zlín was within the confines of the multinational Austro-Hungarian Empire. After that, and in the years of its biggest urban development, it was part of the first Czechoslovak Republic.

[2] Bata's satellites are now dispersed over fourteen different countries and the bibliography and research available is scarce and sometimes inexistent in English language. In addition to general bibliography, secondary sources, interviews, photographical documentation, local information materials (including current cadastral drawings and planning documents), and personal observations collected during field trips made in the years 2012 and 2013 are the base of this research.

Bata and Zlín

Figure 1. General view of Zlín from the main administration building (Muñoz Sanz, 2013[c]).

The modern history of Zlín is inextricably linked to the figure of Tomáš Baťa and his business, the Bata Shoe Company[3]. Born in 1876, Baťa was the newcomer in a family of shoemakers (Cekota, 1968). Meanwhile the shoe industry remained mostly as a handcraft organized in guilds, an emerging class of Czech and German entrepreneurs were transforming industry in the Czech lands, as terms like mechanization, and organizational changes in labour were becoming popular (Freudenberger, 2003; Trebilcock, 1981). Inspired by this new spirit Baťa was determined to change the old system of production, and he started his own business in 1894.

[3] Czech spelling is used along the paper in the names of Czech places and nationals of that country, including members of the member of Baťa family. 'Bata', in English spelling, is used here to refer to the Bata Shoe Company as an entity.

In spite of the difficulties of the early years, the innovation in both product design and sales brought quick success to Baťa. Eager to increase the scale of his firm, he travelled to the United States[4] to learn about the use of division of labour and scientific management in shoe manufacturing, and to study the effect of mechanization and the new spaces of production in the workers. In the first two decades of the century, his company would become one of the largest shoe manufacturers in the Habsburg Empire, and would expand its sales to international markets. A contract to supply the Austrian army during the World War I would make Bata's labour force to grow tenfold, up to almost 4,000 workers (Cekota, 1968; Pokluda, 2009; Šlapeta, 2009).

After the war the drop in sales put the company in a critical situation, and forced Baťa to reorganize its structure and dismiss nearly half of his workers. In 1922, and as a last resort to boost sales, he cut the cost of shoes by fifty per cent, but also worker's wages by forty per cent. New measures of scientific management were put in action giving birth to the 'Bata System of Management', based on the idea of competitive workshops, bonuses, vertical integration, and strong company culture. The strategy succeeded and the influx of capital allowed balancing the books. Its excess was reinvested in the company, and in measures of social welfare for the workers, including health benefits, education, and housing (Devinat, 1930[a]; Devinat, 1930[b]).

Although during the war the construction of a first colony of workers had already begun—designed by Jan Kotěra and inspired by the Garden City Movement[5]—, it was under the direction of František Lydie Gahura[6], that modernity would take a new scale in Zlín. Gahura was in charge of making physical a system of management, a renewed social order based on the motto 'work collectively, live individually' (Jenkins, 1999; Smith, 2008). Rationality, systematization, and

[4] Tomáš Baťa travelled to the USA in three occasions: 1905, 1913, and 1919 (Cekota, 1968; Pokluda, 2009; Šlapeta, 2009).

[5] Jan Kotěra is considered the father of Modern architecture in the Czech Republic, and an advocate for using architecture as a tool of social reform (Krajči & Švácha, 1999). He was the author of the first Czech garden city, Louny, in 1909.

[6] Gahura was Jan Kotěra's student at the Prague Academy (Šlapeta, 2009).

speedy construction methods were used to keep the pace of the manufacturing concern, and the needs of increasing workforce. One of the greatest achievements was the development of the 'Bata module'; based on a 6,15 x 6,15 metres[7] grid the system allowed to build factories and public buildings at portentous speed using sliding formwork. Great experimentation was done in the development of different housing types, with full neighbourhoods of cubic brick houses mushrooming around the factory every year. Furthermore, the city infrastructure, electrical and sanitation networks were improved (Jenkins; Šlapeta, 2009). The result was that Zlín transformed in the 20's into a paradigm of functional zoning, a de facto *Cité Industrielle* (figure 1).

Satellite industrial towns: types and prototypes

In the 1930's, the strategy of international expansion of the company would take the urban and social project of Baťa to an unprecedented global scale. The aftermath of the crash of 1929 brought unexpected difficulties to the growth of the concern's international business. On the other hand, the demand of the domestic market and the need of expansion of the other divisions of the company—machine building, rubber production—surpassed the capacity of Zlín. Baťa's solution to both problems was decentralization, with manufacturing taking place in new locations, including other countries to overcome tariffs. Decentralization would facilitate Bata's positioning in foreign markets, as well as getting access to raw materials and cheap labour (Cohen, 1997; Horňáková, 1998; Říha, 2009; Šlapeta, 2009). The translation of this project into a specific urban and architectural form was straightforward: if the model of Zlín had been successful, why not just replicating it wherever it was necessary.

Bata took advantage of the geopolitical situation in the interwar period, and extended in those places where an industrial high modern utopia[8] would be

[7] Again, the influence of American industrial architecture is clear in the architecture of Zlín; Tomáš Baťa travelled to the USA again in 1919 and visited to the Ford factory in Baton Rouge, as well as the Endicott-Johnson Shoe Company in New York State (Pokluda, 2009). The 6,15 x 6,15 module is the metric version of the 12 x 12 feet module used in American factories.

[8] In *Seeing Like a State* (1998, p. 89) James C. Scott defines high modernism as a '*strong version… of the beliefs in scientific and technical progress that were associated with industrialization in Western Europe and North America from… 1830 until World War I…. At its center was a supreme self-confidence about continued linear progress, the development of*

welcome, such as countries dealing with economic struggle or pools of backwardness[9] or colonial regimes, like India, that encouraged experiments to remake native societies through social engineering. As mini-states within the state, Bata towns worked as 'charter cities'[10], with their inhabitants subject to a series of rules[11] which observance was bound to the permanence in the company and therefore in the town.

The planning division of Bata became a laboratory for experimentation in the development of industrial towns that would make converge Baťa's requirements with models as disparate as the Garden City (Jenkins, 1999) or Miliutin's Sotsgorod (Voženílek, 1948). Whilst the successive versions of Zlín aimed to fine tune and improve the original urban model, its reproduction did not only deal with architectural typologies, programs, or zoning regulations, but also with the natural, social, and infrastructural conditions by the careful selection of the sites. Ideally, the satellite towns were to be situated in undeveloped areas isolated from the influence of big cities, and with plenty of unskilled labour. They were remote yet well connected to infrastructure, mainly railroad and waterways but also airfields, forming a network of towns that exchanged goods, capital, technology and human expertise[12]. Finally, the adjacency to a river and to a

scientific and technical knowledge, the expansion of production, the rational design of social order, the growing satisfaction of human needs, and, not least, an increasing control over nature….'

[9] After the Great War, the Austro-Hungarian Empire dissolved and new states were formed (Czechoslovak Republic, Hungary, and Yugoslavia, among others) and they were eager to welcome any effort to modernize their backward industrial sector.

[10] Economist Paul Romer recovered (2009) the idea of 'Charter city' as a tool for channeling development and urbanization, extending the concept of special economic zones to entire new cities, subject to different rules and regulations that those of the state or region on which they are based.

[11] Unions were banned and a social department monitored the worker and his family life. Cleanliness and tidiness at home were encouraged, even monitored; alcohol, planting trees or shrubs in the gardens, building sheds, altering the houses, or having a pet were among the prohibitions set by the company. Theresa Adamski (2013) has described in detail the conflicts between the individual self and the collective in Zlín.

[12] The creation on satellites adds a new layer to the resemblance of Baťa's project with Toni Garnier's *Cité Industrielle*, since as Dora Wiebenson has stated '*the Cité was to represent one of a federation of cities, among which a bond would be created through emphasis on communication and the exchange of goods'* (1969, p.18).

rural landscape would establish a picturesque setting in resemblance to the Zlín valley.

Gahura was in charge of the design of the first satellite cities (Novák, 2008). In his plans[13] he introduced the concept of strip city, consisting on a grid that is filled with program creating functional bands, following a sequence that replicates a day in the life of the worker—living, working, and recreation. In his drawings, there is a sense of bigness, with the urban grid reaching the edges of the available land, suggesting the infinite growth or extension of the urban system.

In 1932, Tomáš Baťa died in an airplane accident, and his half-brother Jan Antonín Baťa took over the management. The tragedy did not affect the business' expansive plans; on the contrary, J. A. Baťa accelerated the completion of the cities in construction, and promoted new ones. With Gahura appointed as city architect in Zlín, other figures took a leading role in the design of new types of satellite cities.

Drawing from previous experiences, first Josef Gočár and then Robert Podzemný worked in a series of studies of ideal industrial towns for up to 10,000 people, under the influence of the Garden City movement (Novák, 2008). Developing ideal models aimed to make the production of cities fully systematized and based in precise calculation to avoid unnecessary losses for the company. Antonín Vítek and Podzemný himself were the architects that translated that into practice (Novák). In plan, their cities follow an organic leaf structure in which roads in the residential quarters diagonally converge into a green axis leading first to the social and commercial centre, and then to the factory grounds, which were also in close proximity to the sports and recreation facilities (figure 2). These series of towns[14] were universal products with a strong organic formal

[13] Plans for Otrokovice (1929-30, Czech Republic), Otmęt (1931, Poland, formerly in Germany), Chełmek (1931, Poland), Borovo (1931, Croatia), East Tilbury (1931, United Kingdom), Möhlin (1934, Switzerland), Batadorp (1934, The Netherlands), and Napajedla (1935, Czech Republic) were designed according to this principle.

[14] The updated plans for Borovo (1935), Chełmek (1935), Otmęt (1935), Mohlin (1937), East Tilbury (1938), and Batadorp (1940), as well as the new developments in Borovina (1935, Czech Republic), Batanagar (1937, India), Baťovany (1937, Slovak Republic), Belcamp (1938, USA), Sezimovo Ústí (1939, Czech Republic), Zruč nad Sázavou (1939, Czech Republic), Bataville (1939,

identity applied directly to the ground, with no consideration to topographical features.

Le Corbusier's projects for Bata[15] and Soviet planning heavily influenced the next prominent model. Jiří Voženílek developed a distinct version of Gahura's strip city, based more explicitly on the idea of assembly-line urbanism (Voženílek, 1948; Novák, 2008). A green strip clearly separates the factory from a series of parallel programmatic bands accommodating civic infrastructure, dormitories, apartments, schools, family housing, and recreational facilities (figure 2). In contrast to Gahura's plans, here the belt city is understood as a self-contained unit[16].

With the advent of the War, Voženílek ideas radicalized leaning towards socialist planning, proposing a precise articulation of relationships among industry, transportation networks, high and low-density settlement units, agriculture, and the regional landscape (Voženílek, 1948; Novák, 2008). Voženílek's ideal town served just as an inspirational diagram, and the finished plan grew and adapted to the actual landscape conditions, forcing a dissolution of the urban figure in nature. These units[17] were self sufficient and after reaching their maximum population it was better to create a new, parallel town, creating regional patterns that bring to mind some of Hilberseimer's explorations in suburban decentralization[18].

France), Batapur (Pakistan, 1941), and Batatuba (1947, Brazil) are all prototypes based on this model.

[15] Albeit relatively unknown, the phenomenal role of Baťa as patron of modernity attracted the interest of some of the most talented, and ambitious, architects of the century. Cohen (1980) thoroughly described the complicated relationship between Le Corbusier and Bata, which included several unrealized commissions including the master plan for Greater Zlín, a plan for a satellite town in France (Bataville), the design of the Bata Boutiques in France, and the pavilion of Bata in the Universal Exposition of 1937. Less mentioned has been the case of Adolf Loos, who considered the Czech entrepreneur one of the '*most important men of the present time*' and tried repeatedly, and unsuccessfully, to meet him (Rukschcio, 1982, p. 362).

[16] A new plan for Baťovany (1945), and the cities of Svit (1935, Slovak Republic) and Martfű (1941, Hungary) were designed according to this spatial organization.

[17] A plan for Bataville (1939), Batawa (1939, Canada) and the extension of Svit (1948) were the result of the influence of this new, wartime, direction in the planning of industrial cities.

[18] See '*The New Regional Pattern'* (Hilberseimer, 1949)

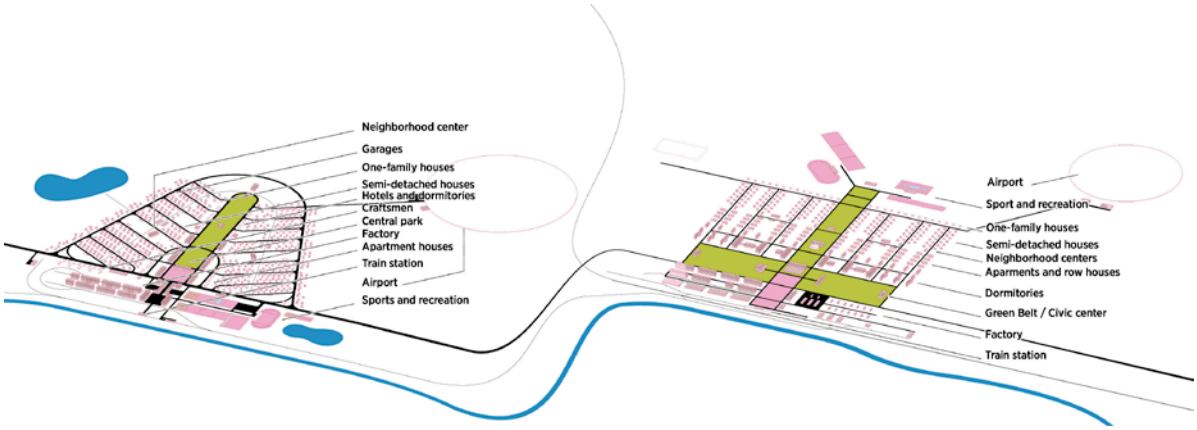

Figure 2. On the left, ideal industrial town with organic leaf structure designed by Robert Podzemný in 1937; on the right, ideal industrial town designed by Jiří Voženílek following the idea of assembly-line urbanism (Muñoz Sanz, 2013[c]).

Over the course of the 1930's and 1940's, the different architectural trends, new social needs, changes in the management, ideological positions, and the outbreak of the World War II would inform the continuous search for the ideal industrial town. The different types overlapped and sometimes there was a succession of alternative plans for the same town, even when construction had already begun. At the same time that the satellites were fulfilling the pressing and practical needs of the company, for their designers the fast pace of their construction and immediate tangible results became an unusual opportunity to experiment and test in real time with urban and architectural prototypes.

Bata towns after the War

The events in the Second World War would change the course of Bata's business, including the lives of its urban offspring. With the threat of the war, the planning of foreign units continued, to both secure surplus capital, and to anticipate an eventual transfer of control of the entire concern to a new Zlín in the case of its occupation, as it actually happened. Both J.A. Baťa and Tomáš Baťa's son, Thomas J. Baťa, went into exile in 1939 (Pokluda, 2009), and both started efforts to reconstruct the empire, from Batatuba and Batawa respectively. With an unclear leadership in Zlín, the work of the architects, and the planning and construction of new settlements continued at a slower pace, while some of the existing ones were trapped amidst warfare and violent

occupation. The liberation of the occupied towns by the Red Army was an ephemeral relief for the directors in exile, as the ascension to power of Communist governments in the east would bring the nationalization and loss of ownership and control of many of its factories and towns, including Zlín, in 1948.

Several decades have passed since that critical moment. Twenty towns[19], different iterations and successive versions of a perfected Zlín, have continued their lives on different paths. These pieces of urbanism have been exposed to a multiplicity of realities and challenges in radically different contexts, even out of the sphere of influence of the company that created them. Therefore we can consider them as samples, products of a consistent project, on which it is possible to interpret the effects of economic and societal changes, to ask questions about urban resilience and sustainability, and to discern some trends, some of them general, some others more specific, that could facilitate the critical reformulation of a renewed relationship between design, labour, and capital.

As one could expect, the biggest obstacle for a successful self-sustained continuity in time laid at the core of what defines a company town: the dependency of jobs and economic activity on a single industry. In most the towns that remained in the western block, post-war development was hampered by the restructuring of the company. The consolidation of the welfare states made accessible public social infrastructure that relieved the company of such responsibilities. Instead of that, wages raised and workers incorporated into the consumer market. The subsequent access to car and home ownership changed also the mentality of the company regarding housing provision, and it got rid of it real estate stock by selling land or homes to workers or other entities. When manufacturing shifted to cheaper countries, competitiveness was lost, and factories ended up closing. With no other economic engine and in a relative isolation, the settlements became dormitory towns or suburban enclaves that never reached their full potential. In private hands, heritage protection policies

[19] I am considering as ‘towns’ those industrial settlements planned and built by the Bata Shoe Company based on a functional zoning that included factories, housing for workers, social infrastructure, and recreation. The company build dozens of other factories, some of which included a small housing compound.

turned up as one of the only mechanisms to preserve the formal integrity of these urban ensembles[20].

In the Communist block, the centralized control on production carried out by the governments as well as the existence of safe markets for their products, mainly the USSR, made the towns thrive. The existing housing stock became state property, and that prolonged the original look of their architecture. Socialist programs put into service the existing Bata social infrastructure, and promoted the construction of new buildings. The need for more housing caused the introduction of new typologies, mainly prefabricated housing blocks. Progress and population growth—beyond the numbers they had been planned for—affected greatly the urban landscape and suburban feeling of the towns. After the fall of the iron curtain, the companies specialized on the manufacturing of shoes barely managed to survive a couple of years to the fierce competition in the capitalist global markets, bringing rampant unemployment to the towns. This has forced the municipal and regional governments to employ active policies to bring back economic development by finding alternative economies, or attracting new employers.

In spite of such—at times devastating yet revealing—panorama, the study of the specifics of some cases makes it possible to find some productive lessons in ways in which the effects of the neoliberal economy on these communities have been buffered. The cases of Batanagar, Batawa, and Otrokovice widen the scope of action and legacy of future designs, bringing them closer to discussions on infrastructure, landscape, and community participation.

Batanagar: infrastructure and contingency. In contrast to, and at the expense of, the European cases, shoe manufacturing still takes place in Batanagar, India. In 1999, the need of the company to get rid of the high operating expenses of a

[20] East Tilbury in the UK was designed a Conservation Area and contains listed buildings (Thurrock Council, 2007); the factories and part of the housing at Batadorp / Best in the Netherlands were declared Rijksmonumenten (Rijksdienst voor het Cultureel Erfgoed, 2014); the urban ensemble in Möhlin in Switzerland is an Industrial Monument of National Importance (Gemeinde Möhlin, 2006); new construction in Batatuba, Brazil, was prevented in the latest masterplan for the city (Prefeitura Municipal de Piracaia, 2006); Belcamp, USA, was listed in the National Registry of Historic Places in 1996, but in spite of that the complex was demolished in 2002 (Maryland Historical Trust, 2002).

large company town, a large tract of virtually open land in a dense city, coalesced with the interests of real estate developers eager to make profit with the money from raising upper classes and investment funds, and Batanagar became a construction site of a future new town (figure 3). The new form is organised along the structuring lines of the old town, to make use of the existing service infrastructure and access roads. The overall design is also determined by the existing *nature* (environmental laws in Kolkata enforce the conservation or transplantation of trees on site, and the preservation of the current water bodies) when in fact it was totally altered during the construction of the town. Contestation with the existing and neighbouring population is prevented with the relocation of workers in new apartments, the provision and access to public space for community use and festivals, and the preservation of the social infrastructure, schools and temples, once set by Bata and now used by a wider community. Whereas the old housing stock is being slowly demolished, part of the social and environmental legacy of the modern town will be preserved (Muñoz Sanz, 2013).

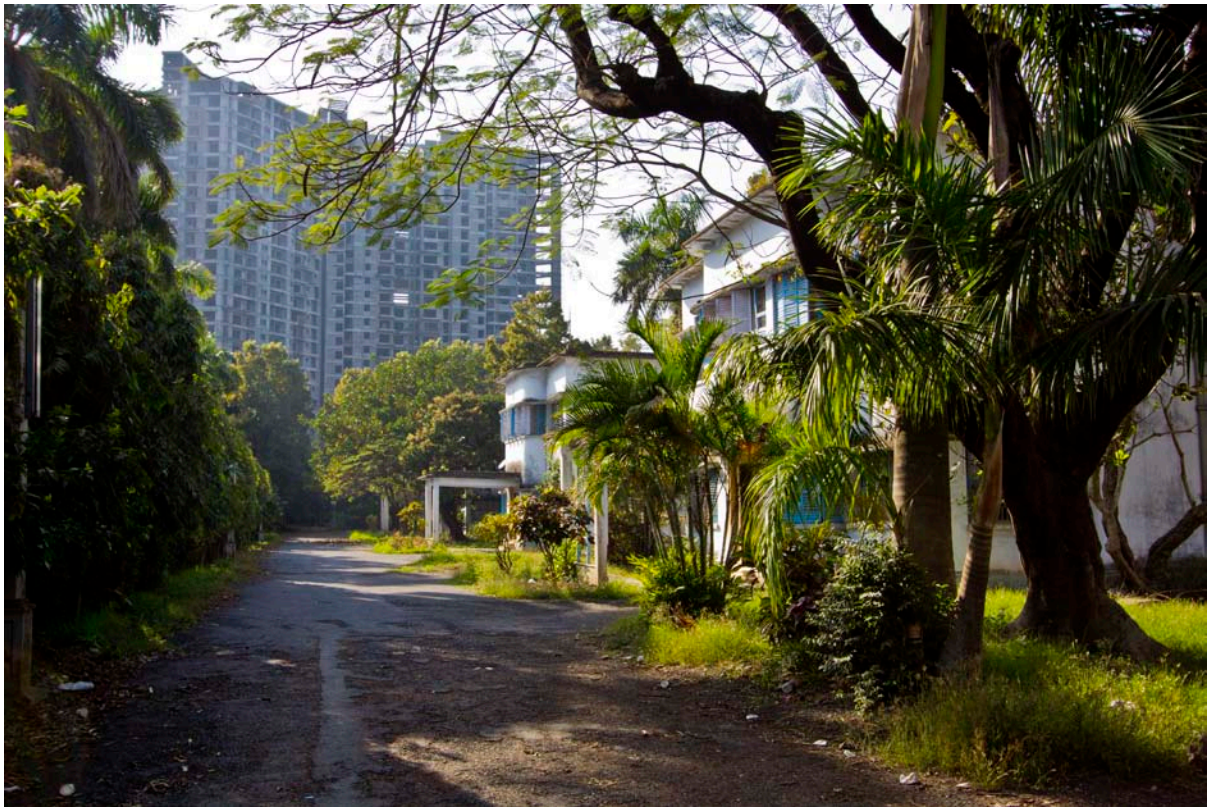

Figure 3. Villas in the Officers' colony of Batanagar, with high-rise buildings for the new development under construction (Muñoz Sanz, 2013[a], p. 102).

Batawa: building with community. After the closure of the shoe factory in Batawa, Canada, unemployment and isolation put in severe risk the continuity of the existing community. The Batawa Development Corporation, chaired by Sonja Baťa[21], is currently developing a sustainable community redevelopment plan, with 500 new homes and a forty-hectare business park. The project aims to bring new life to Batawa and make of it a model village which breaths from ideas from New Urbanism and smart growth, keeping a ski hill—founded by workers of the factory independently from the company management—as a regional recreational magnet and community centre. Excellence in design, community participation in decision-making, as well as environmentally and economically sustainability and social responsibility are the basis of the town's transformation (Batawa Development Corporation, 2007). The symbol of the development is the

[21] Born Sonja Wettstain, she married Tomáš Baťa's son, Thomas J. Baťa, in 1946.

former factory building, which is being transformed into condominiums (figure 4) (Muñoz Sanz, 2012[b]). At the same time that it will come back to its original estate after the renovation, the project will eliminate any logo or symbol on it that might objectify the idea of a company owning a town.

Figure 4. Residents preparing a skate ring for a community event in Batawa next to the old factory (Muñoz Sanz, 2012[a]).

Otrokovice: logistical hub. Contrary to shoe manufacturing towns, those that because of Bata's vertical integration depended on other, more specialized production (chemicals, synthetic products, and machinery) keep industry as the economic foundation to date, as the inheriting companies took advantage of their particular expertise, location, and industrial infrastructure, to maintain operations successfully. Otrokovice, the first Bata satellite town, was home of a variety of auxiliary industries that supported production in Zlín. It was established there because of its potential of becoming a nodal logistics centre: it is located adjacent to a main railway and highway corridor, and a canal for water

transportation and an airport were constructed with the town. This logistical and industrial congestion resulted beneficial; as the city grew and has kept its diverse production facilities in use manufacturing the same products (tires, tanneries, airplanes) that Bata used to produce there, while the original urban form and architectures are reasonably well preserved (figure 5). Otrokovice is home of the largest tire manufacturer in Europe (Continental AG, 2013), and the inclusion of the city as a node in a pan-European infrastructural corridor (European Commission, 2013) anticipates further economic development.

Figure 5. Former worker's housing in Otrokovice. The old shoe tannery building is on the background (Muñoz Sanz, 2013[b]).

From Zlín to Silicon Valley, and Dhaka: lessons from Bata

The continuous search for an ideal industrial town undertook by the architects of Bata was inspired by a critical learning from past experiences and the feedback received from their own urban prototypes; truncated by the war, one wonders how the successive iterations would have looked like. The reality now is that the

engagement of corporations with the landscape of labour in the contemporary world can just be seen with dismay: from the non-urban clustering of company islands in Silicon Valley or the isolation of corporate headquarters in idyllic 'pastoral' landscapes[22], to the growing divide between the environments in which products are designed and where they are manufactured—think of the fashion industry headquarters or Norman Forster's building for Apple versus the manufacturing cities in China or the collapsed factory in Dhaka[23]—all end up sharing similar challenges in housing, transportation or social justice. These conditions make more crucial than ever to re-imagine the role of design in achieving an integral and sustainable relationship between economy, urbanism, and the communities of labour.

The turbulent history of the XX century makes it difficult to evaluate the success of this undertaking and the building of satellite cities, since these events prevented from full implementation or the planned course of their lives. In Spite of that, the Bata case is still extraordinary for it was able to build a decentralized system of satellites that proved to be successful as business strategy for survival in a critical moment, being the biggest evidence that the company is still a family business in operation today. For the company, building towns was not really a matter of charity or paternalism[24] but a social experiment which purpose was to placed people at the centre of the sustained growth of the company. For that, Tomáš Baťa thought it was instrumental to produce a new urban and social environment that would produce a new kind people, putting into practice the transformative agenda of modernism. Nevertheless, what makes it really unique is that in its effort for reproducing the same efficient environment everywhere by

[22] Both Louize Mozingo in '*Pastoral Capitalism'* (2011) and Alexandra Lange in '*The Dot-Com City'* (2012) offer interesting views on the development and characteristics of corporate campuses and headquarters in America.

[23] A collapse of a factory in Dhaka, Bangladesh, killed more than 1,000 workers, raising criticism about the responsibility of fashion brands in the health and safety conditions of labour employed in the manufacturing of garments (New York Times, 2013); the conditions of workers manufacturing and assembling high tech gadgets in China were revealed in the Pulitzer-awarded series '*The iEconomy*' published in the New York Times (2012).

[24] In one of his speeches in 1924, Tomáš Baťa stated: '*Our reason for giving you a share in the profits is not that we think we ought to distribute charity to mankind. Our aim is a different one. We want to raise the level of production…*" (As quoted in Devinat, 1930[a], p. 59)

the exportation of a global and standardized, yet adaptable, social and urban system, it brought higher standards of urban landscape, housing and social infrastructure to both a town in Switzerland that to one in Kolkata.

As a paradigmatic case that encompasses many others—from different times and geographies—learning from Bata urbanism, from its mistakes and achievements, brings about lots of issues to the renewed discussion on corporate urbanism, company towns, and international development. The most fruitful of those research and design questions that come up for consideration have to do with imagining ways of bridging the gap between the heroic and future-oriented visions of modernism, and its grounding on issues of social justice[25], risk, ecology, and global economy. The following four provocations try to summarize those, and they are aimed not just at corporations, but also, and in particular, at designers, planners, and policy-makers:

Planning for contingency. Can we plan in advance for uncertainty, exploding bubbles, and shrinkage instead of sticking to the illusion of unlimited sustained growth? Is the design of landforms, ecologies, and infrastructure—physical, social, and intangible—an alternative to immutable architectural forms as the only legacy of capital?

Interactive polycultures. Can we show the benefits of clustering, diversity, interdependencies, and exchange as opposed to monocultures in isolation?

Responsive philanthropy. Would it be worth the effort of replacing enforced[26], unregulated, philanthropy with negotiating an integrated vision for the future of working communities?

Corporate design responsibility. Could corporate social responsibility be measured in tangible and global design standards and not just on statistics and commitments on paper?

[25] Susan Feinstein (2011) proposes diversity, equality, and democracy as the central concepts to incorporate social justice in planning.

[26] The Indian New Companies Act of 2013 imposes under certain criteria a mandatory series of rules for companies in relation with Corporate Social Responsibility (CSR). The bill estimates the amount to be spent according to the profit, but gives freedom to the companies to choose the field of action of their CSR (Indian Ministry of Corporate Affairs, 2014).

There is far more research to be done, but these questions are potential directions for future investigations—opportunities for the reinvention of the idea of company towns, able to unveil the hidden potential in the imagination of new kinds of economically viable privately owned public urbanities.

Acknowledgments

The research presented in this paper has been funded by the *Druker Traveling Fellowship* from the Department of Urban Planning and Design at the Harvard Graduate School of Design (field work), and a fellowship from the Fundación La Caixa to do research in the Faculty of Architecture and the Built Environment, Delft University of Technology, The Netherlands.

I would like to express a deep gratitude to Professor Luis Fernández-Galiano, my research supervisor at the School of Architecture of Madrid, for his guidance and useful critiques of this research work. I would also like to thank Professor Han Meyer for his valuable advice during my research stay at TU Delft.

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(in) THE *INVENTION* OF BRASÍLIA: MODELLING THE GROUND

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Abstract

Brasília is built from a rigorous and magnificently designed ground*.*
It is visible to those who wander the city that its composition rests on an extraordinarily modelled ground: the streets and buildings are linked to the land as if on skin that not only welcomes but also amplifies its tri-dimensionality.
The perception of this plasticity is evident at all scales, intersecting the shape of road infrastructures, the layout of buildings in Superquadras *and strongly pronouncing itself in the* Esplanada *platform. Also, it is admirably expressed on* Central Rodoviária*, known as* 'marco zero'*, a sublime moment where the various* brasiliense *scales articulate and mould together.*
This modelling is a fundamental ally in the 'modern monumentality' of Brasília. Engaging and integrating the infrastructural technique, the moulding of the land appears as a subtle backdrop, resulting from its absolute 'naturalness', insinuating that the topographic support was always present, a feature of the territory that the planner found and, from this 'natural condition', conceived and developed the urban design. But one substantial intervention on the original topography is evident in the photographic records taken during the construction of the city, demonstrating that this 'naturalness' is deliberate and controlled through careful design. However, the disciplinary literature we know systematically represents the city in plan and shows no section at urban-scale that relates to the design of the settlement with the corresponding manipulation of the land.
This communication perceives the modelling of the ground as a fundament of the urban design and aims to contribute to the reading of the Plano Piloto by comparing the project(s) of the city – in plan and section – and determining how the topography upon where it is set was interpreted.

Keywords: Brasília, topography, ground, section

1. the territory: its *mental representation*

The affirmation that Brasília was designed from *scratch*, *'like a flower in that wild and lonely land'*[1] is recurrent. The minimal urban inscription in the valley, although inhabited and intersected by paths opened by the native Indians, settlers and *bandeiras* in the eighteenth century (Vieira Junior,2010; Barbo,2010), came to be described as *tabula rasa.*

Only the powerful presence of the *cerrado*[2] emerges, in this approximation, as an unavoidable pre-existence. And the Modern imaginary promptly incorporated the rude *cerradense* integrity in its civilising vision, embedding the *polis* within the immense area, grafting sophisticated platonic figures into the red earth.

Brasília, systematically represented in plan, is described as a flat city that gently leans on Lake Paranoá. This is a frequent image in the descriptions of the territory on which the city sits, as already described by Auguste Glaziou, in the *Relatório da Missão Cruls*[3]. In his *Noticia sobre Botanica Aplicada* (1896), Glaziou describes an extensive valley, slightly rugged and intersected by various watercourses.[4] Approximately sixty years later, Israel Pinheiro, the person ultimately responsible for the management of the city's construction, declared that Brasília was *'a billiard table'* (Guimarães, 1998).[5]

[1] This statement from Oscar Niemeyer is cited in *Sinfonia da Alvorada*, which was composed by Vinicius de Moraes and Antonio Carlos Jobim for the inauguration of Brasília. The first verses of the symphony say that *'In the beginning it was the desert. Ancient solitudes with no sorrow.'*

[2] *Cerrado* is the largest savanna region in South America. The Biosphere Reserve of the Cerrado in the Federal District, established in 1994, occupies approximately 40% of its territory.

[3] Louis Cruls, Head of the Commission, had already stated in the Report, which included the work carried out between July 1894 and the end of 1895, that the final choice for the localization of the new capital would likely be in the area between the rivers Gama and Torto (Cruls, 1896:12). About *Missão Cruls*, consult Junior, 2010, p.129-143.

[4] In a scientific text, though impressively written, Auguste Glaziou, states that he was profoundly impressed by the *'Taboleiro do Rio Torto'*, whose topographic flatness does not require work for the implementation of buildings and streets (Glaziou, *in* Cruls, 1896: 12).

[5] Augusto Guimarães Filho, responsible for the Urban Planning Division, in Rio, in his testimony of 1989 says that the first thing he had to do was 'shatter the myth' that the land where the city was to be was flat.

But, in fact, surrounded by hills that give it a horizon whose ridgeline is continuous and clearly perceptible from its interior,[6] Brasília emerges as situated atop of an elevation at the heart of a 'crater'.

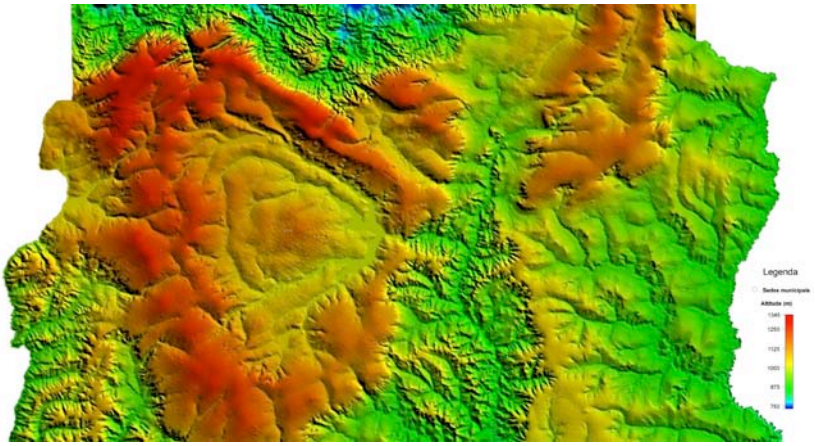

Figure 1. 'Distrito Federal – Altimetria' (Embrapa, s/d). Brasília|Plano-Piloto is situated at the centre of the 'crater'.

This ridgeline forms the basin of Lake Paranoá exhibiting altimetry variations of about 250m.[7] It is not difficult to imagine that the newcomers from Rio de Janeiro, first during the Cruls expedition, and then, in the various approaches taken to the construction of the city, coming from rugged topographies and densely occupied urban areas, saw this area as a vast *flat* space and fully available to welcome the new city.

In an unexpected way, this vision of a '*valley'*– a valley that has at its centre an elevation of approximately 200m in height – as a *lowland* was paradoxically reinforced by the realisation of its graphic registration. The construction of the new capital was officially approved in the mid 1940s, and at the start of the

[6] The maps *'Visibilidade do Horizonte de Brasília'* – which is incorporated in the *'Mapa de Visibilidade do Horizonte do Plano Piloto de Brasília'* (2010) – and '*Distrito Federal – Altimetria*' (Embrapa, s/d) gives us this evident perception.
[7] This is an approximate value, obtained by cross-checking the information contained in the cartography *'Distrito Federal – Altimetria'* (Embrapa, 2005) and *'Mapa de Visibilidade do Horizonte do Plano Piloto de Brasília'* (2010).

following decade drafting began on the necessary cartography[8] for the studies that would lead to the identification of its precise location. Performed using the most sophisticated technical means available at the time, initiated through flights and aerial photography, this physical recognition abstracted the interpretation of the territory by inferring a distant vertical view:[9] '*from the distance, the landscape transforms into a figure'* (Labastida, 2013:I-62). And, in this instance, the ground *flattens*.

Apparently, this *flat figure* defined the perception of space where the city would be located, even overlapping the cartography that confirmed a diverse morphology. Reinforcing this settlement, politicians, journalists and technicians – who all contributed to the construction of its collective imaginary – also arrived in Brasília by air.

This image has continued to build up to this day given that travelling within the city is done by car; and since it is not a city covered on foot, closely and at slow speed, the topographic variations of the land are not directly and susceptibly grasped. Thus, the representation of Brasília was built as if it were a flatland, a perception accentuated by its subsequent *form of use*. In the contemporary mental map, Brasília was, and is, a *nazca figure*.[10]

[8] The survey was commissioned by the Comissão de Localização da Nova Capital Federal to a Brazilian company, *Cruzeiro do Sul*. The photographic mosaics prepared through these flights began a complex process of cartographic restitution executed by *Geofoto*, which resulted in a complete collection of extraordinary quality and accuracy, belonging to the ArPDF collection.
[9] About the cartography as a 'demiurgic instrument', see Corboz, 2010.
[10] *Discovered* in the 1830s, the *nazca lines*, executed between 200bC and 400aC in the Peruvian desert, are only readable by aerial view. In the same sense, to travel through Brasília is an experience powerfully amplified from the exercise of abstraction only possible to the connoisseur of its design, to those who can read the city at a bird's flight.

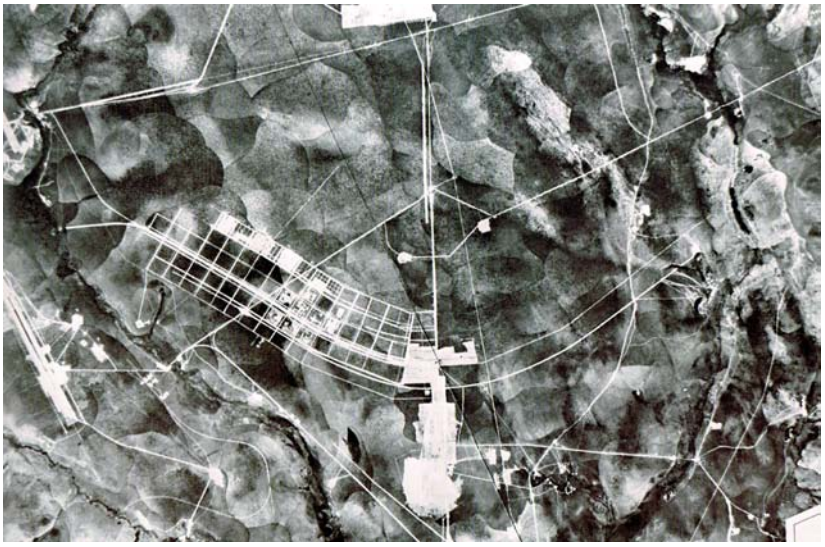

Figure 2. Brasília under construction, aerial view (source: Fundo Novacap, ArPDF).

2. The territory: its *graphic representation*

The first aerial photogrammetric survey of the region was executed in 1954, at a scale of 1:250.000: covering an area of 52.000km2, it was defined from that which had been determined by the Cruls expedition. This survey was the basis for the study commissioned to the American company Donald Belcher, which selected five zones as the most favourable for the location of the new capital. Also, in 1954, surveys at a scale of 1:25.000 were executed in these zones, as a result the 'brown site' was chosen – and an area of 5.789,16 km2 was defined – for the city's location. This approach led to a series of cartographic campaigns, now at a scale of 1:2000 (which reached an impressive 700 plan sheets) and of 1:1.000, drawn with great accuracy.

Novacap, the entity responsible for managing the design process and construction of Brasília, was created in 1956, after Kubitschek election. In that same year, the competition for the design of *Plano Piloto da Nova Capital do Brasil*[11] was launched. Quite open in its terms, it demanded that the participants

[11] Prior to this competition many projects for the new capital had already been carried out (see Tavares, 2004), the most recent in 1955, the *Plano Vera Cruz*, commissioned by the Comissão de Localização da Nova Capital Federal. Featuring a Beaux-Arts design (Ficher, Leitão, 2011), it

create a city model, specifically requesting the *'basic outline'* at a scale of 1:25.000 and a '*justificatory report*'.

Chartering the immense preparatory work of recognition and territorial registration carried out until then, the competition provided,[12] among other elements, topographic surveys at various scales; later on, the participants were asked to consider: the water level of an artificial lake, to be created, at elevation 997,[13] the hotel and the presidential palace, the airport, a '*railroad*' and a '*motorway*' connecting Anápolis to Brasília (*in* Braga, 2010:43).

The territory that was delimited for the establishment of the city had an area of 150km2. Framed by the ridgelines of the surrounding mounts, its highest point is *Cruzeiro*, at 1.172 meters and its lowest point would be determined by the surface of the future lake. In a straight line between *Cruzeiro* and the water level a spur can be observed, dividing the basins of the rivers Gama and Torto, both profusely marked by streams. This hill is the morphological *accident* that, in reality, prevents the reading of the territory as a *flat ground*.

3. 1957. The *Plano Piloto* of Lucio Costa

Selected from among 26 candidates, Lucio Costa's proposal translates into a beautifully hand-drawn plan. The design does not expose its morphological support and, of the physical reality where the city will be located, it only

already contemplated Lake Paranoá with the water level at a height very similar to that which later came to be adopted.

[12] Launched in Rio de Janeiro in September 1956 by the Comissão de Planejamento, da Construção e da Mudança da Capital Federal, the National Competition for the *Plano Piloto da Nova Capital do Brasil* provided the participants with, namely: covering all of the Federal District, an aerial photogrammetric mosaic at a scale 1:50.000 (with contour lines at 20 in 20m), drainage and soil maps; '*covering the site of the Capital (approximately 1.000km2)*', a topographic map executed by aerial photography, at a scale of 1:25.000, with contour lines at 5 in 5m, '*photographic amplification of the maps of the site of the Capital (200km2), with contour lines at 5 in 5m*' and '*regular topographic maps, at a scale of 1:2.000, with contour lines at one in one metre and two in two metres, of the area (150km2) indicated as ideal for the localisation of the urban area of the Federal Capital*' ('Edital do Concurso...' *in* Braga, 2010:39-41).

[13] Lake Paranoá is approximately 45km, has a depth of 30m and a volume of water of 600 million cubic metres (Jeferson, 2004:158). It results from the damming of the river with the same name, formed by the junction of the rivers Torto and Gama, initiated in 1959; the water level came to be at elevation 1000. The formation of an artificial lake has already been contemplated by Glaziou (*in* Cruls, 1896:13), by closing a 'loophole', known as the waterfall of Paranoá.

indicates Lake Paranoá, taking into consideration the limits defined for it in the competition.[14] The '*local topography*' is only referred to in point 2 of the Report that integrates the proposal when justifying the curvature of one of the axis.

Although not explained, however, the *'partido'* that was adopted was indelibly impressed by the topography, which can be verified by the overlapping of the *Plano Piloto* submitted for competition (PPB|1957) with one of the topographic surveys existent at the time.

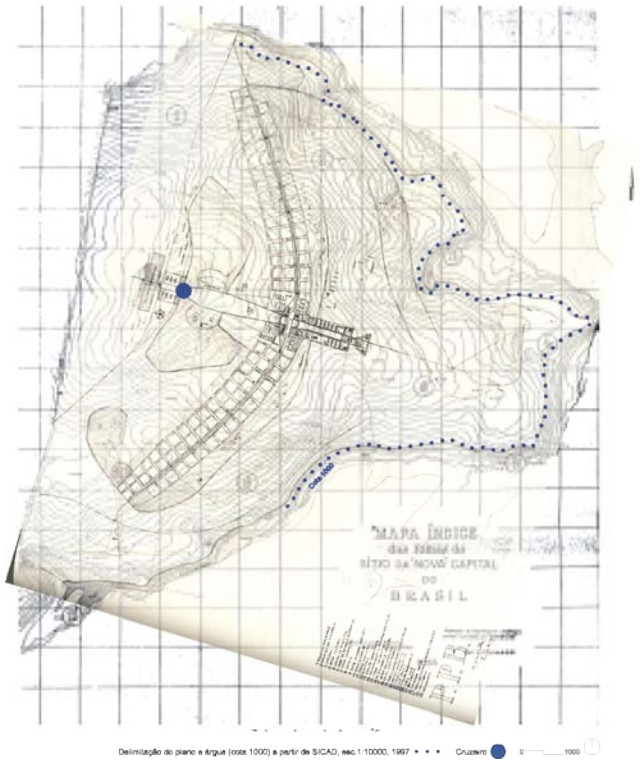

Figure 3. Brasília - Plano Piloto. Overlapping plan: 'P.P.B. (Lúcio Costa, Competition 1957)' and 'Mapa Indice... Sítio da Nova Capital do Brasil' | esc.1:100 000 (the author)

[14] When compared to other proposals that were distinguished by the jury, it is evident that, although all contemplate the topographic information provided by Novacap in their designs, they do not give it particular importance (with the exception of the design submitted by Mindlin and Palanti, who featured the implementation of the two main roads in much the same way as Lucio Costa; and also, although to a much lesser degree, the plan of the Roberto Brothers). In fact, it is Lucio Costa's design that gives more attention to the land's morphology.

The design is tied, quite intentionally, to the morphology of the land: apart from the *Eixo Residencial* that, in an arch, accompanies the contours, the *Eixo Monumental* (the spatial structure that hosts the 'monumental scale' and integrates the connecting nodes with the territory outside the city) is exactly implanted at the top of the spur that moulds the local orography.

4. 'put the city on the ground'

The Plan submitted for competition by Lucio Costa was, according to his own words, a '*brief presentation of the* partido' that was adopted. As the winning plan, it was necessary to transform the idea into a project, giving it technical specifications, harmonising architecture and infrastructures, adapting the design to the land, in short, giving due *measure* to all parts.

Apparently, however, the circumstance of Brasília being perceived as *sitting* on level ground and the *naturalness* with which the buildings appear to articulate with it, coupled with the fact that there are no known designs relating to a systematised topographic project, propagated the idea that no such project had existed and that the definition of the elevations for the setting out were decided as construction was being developed.[15]

Perhaps, for these reasons, the disciplinary literature we know systematically features the city in plan and shows no sections at urban-scale that relate to the design of the settlement with the corresponding manipulation of the land.

However, the accentuated intervention on the original topography[16] evident in the photographic records made during the construction of the city (Acervo Fotográfico ArPdf; Kim, 2010), suggests that this apparent *naturalness* is

[15] Given the speed at which construction was being developed, this situation occurred in particular in the setting out of the *super-quadras*. Moreover, this corresponds to the statement made by Nauro Esteves (Head of the Architecture Division / Oscar Niemeyer's team, located in Brasília), who speaks of '*doing directly on the ground'*, in his testimony (1989). However, in the same series of ArPDF interviews, Sérgio Porto (1989), bothered by the results of '*that business of Nauro, of not waiting*', states that it would not be necessary to do so.

[16] The *Revista Brasília* nº 13/1958 (*apud* '*Do imaginário ao concreto*', 2004, p.37), in the article *'Estatísticas do primeiro ano de construção'*, states that 7 million cubic metres of soil were moved, '*gathering 428 heavy bulldozers*'.

carefully controlled. Proving this, Guimarães Filho (1998) mentions that the work of '*materialising the city*' began by recognising the topography: *'...we filled the plans with sections of the land... Here is 3%, here is 5, this here is zero... And we knew that the lake would be at elevation 1.000)*' and speaks of plans designed '*contour line with contour line*'.

> The plans were precise, no pretty designs, none of that… we would draw the final plan on altimetry paper that already had the natural contours and we would place over the natural contours the coordinate points and arrangement of the contours that result from the projected movement of soil (Guimarães Filho,1998).

Jayme Zettel (2013) also attests to the existence of an accurate topographic control, stating, for example, cross-sections designed at 20 in 20m along the *Eixo Monumental*.[17]

And, although the respective plans have not yet been found, the statements made in the scope of the *Programa de História Oral* (ArPDF,1989) and the interviews carried out with Jayme Zettel and Jethro Bello Torres (2013) corroborate their existence. Also, the *'Memórias de Cálculo da Urbanização de Brasília'* by Jethro Bello Torres, a document of great importance to the history of the construction of Brasília, confirms the existence of very precise elements orienting the topographic marking on the ground.

Therefore, the development of the *Plano Piloto* implied the preparation of a detailed topographic plan,[18] which was executed in Rio de Janeiro by Lucio Costa's team. Under the technical management of Augusto Guimarães Filho, who *'taught how to do it and who was instrumental to the development of the plan'* (Leal, Porto, 1989; Zettel, 2013), the task of *'taking the city, materialising it, putting her to the ground'* began:

[17] Among the various archives researched, it was not possible to find the plans that were drawn by Lucio Costa's team in the scope of the topographic definition of Brasília. There is, however, a lot of documentation relating to the construction of the city that has not yet been catalogued, and it is expected that this material be found and identified.

[18] Moreover, the apparent non-existence of artificial hills and depressions resulting from large embankments or excavations in the vicinity of the city – traces usually left by the erection of new metropolises – seems to corroborate the idea that the calculations for the earthworks had in consideration, namely, the balance between excavation and embankment.

> Thus... we begin to follow the supervision of Guimarães. Sectioning the ground, trying to place that arch... in truth, we had to work the ground a lot until placing it in the best position, for the purpose of sections, embankments, the position of the plan, the risk of Lucio Costa... Then began the calculation of the coordinates... we began to effectively carryout Lucio Costa's plan (Zettel, 1989).

The team worked at a scale of 1:2.000, *adjusting* the project over the montage of cartographic plans, spread out on a large table (Leal, Guimarães, Porto, 1989; Zettel, 2013) and calculating the coordinates,[19] systematically checked with Joffre Mozart Parada, Head of Topography in Brasília, responsible in the field for the foundation of the city.[20]

The group from Rio was in permanent contact with Brasília by radio that operated 24 hours a day, by which coordinates, distances, surveys were confirmed: *'Thus, we left the line open all the time... I would pass information via radio to Mozart... I continued to do all the points, because that time period was exactly that of the city's outline'*. Given the shortage of time, the coordinates for the foundation of the city were frequently provided under great pressure: '*on site, the surveyor waiting with the machine... you giving, calculating, giving it him*'.

During that phase, contact via radio was complemented by the presence of the Architects from Rio in Brasília, who '*rotated'* for that purpose. In 1961, part of the planning team set-up there, where Niemeyer's group, responsible for the architecture, was already settled.

Subject to multiple adjustments[21] as a result of comments by the jury and the inevitable confrontation between the idea presented for the competition and its

[19] Jayme Zettel (2013) and Guimarães Filho (1989) mention '*the old Facit machine, manual*', where they calculated the coordinates; they also mentioned that there was only one machine in the office and that many times it was necessary to line up to use it.
[20] The testimonials are unanimous in defining Engineer Mozart Parada as one of the most competent technicians, always present, when and where necessary. José Silveira Filho, a cartographer that came to work with him at Novacap, in 1957, says that practically all of the *Plano Piloto* was implemented by Mozart (*in* Bello Torres, 2009).
[21] Regarding the adaptation of the PPB submitted for competition and the erected city, see Leitão, 2003, and Braga, 2010:227-258.

effective implementation, the *Plano Piloto* by Lucio Costa, however, maintained its integrity and spatial clarity due to this intensive monitoring.[22]

From those adaptations, the one that deserves to be focused on in the scope of the present article refers to the adjustment of the *Eixo Monumental* (EM):[23] the jury's criticism, that considered the implementation of the Plan too far away from the lake, imposed the shifting of the '*point of intersection of both axis by about 800m, and thus, the whole urban area*' (Carpintero *apud* Leitão, 2003, p.98). The EM as a whole was also subject to important growth, which significantly amplified the dislocation of soil that Lucio Costa had already expressed in 1957. *'The Eixo Monumental and the Rodoviária, that which was a real "Africa", a very serious business in terms of earthmoving works'* (Zettel, 1998).

Through the overlapping of the plan submitted for competition and of the current survey[24] it is apparent that the extension of about 5.450m predicted in the initial plan (measurement between the axis of the path foreseen to the top west, that links the city to the outside and supports the railway station) grew almost by 2/3, reaching 8.716m in the executed plan.[25]

This expansion, which results in an overall extension of the length of the EM in about 3.260m, was not distributed equally through the various *notable moments* that accentuate and organise it, altering the geometric and topographic relationship the plan initially presupposed.

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[22] The testimonies of the architects involved in the construction of Brasília (*Programa de História Oral*, ArPDF, 1989), lead us to believe that, despite the existing group spirit, the relationship between the Urban Planning and Architecture Divisions was, at times, tense.

[23] Whereas the project attempted to adjust the *Eixo Rodoviário* to the topography, it did not do so in relation to the *Eixo Monumental*; to the contrary, it attempted to assert it by making it '*come off the ground*', a choice that implicated substantial earthworks (Guimarães Filho, 1989). On the urban history of the *Eixo Monumental*, consult Marquez, 2007.

[24] This comparison was carried out by overlapping two common moments between both plans: contour line 1000, which defines the water level of Lake Paranoá, and elevation 1172, which corresponds to the highest point of the whole area of the *Plano Piloto*. This overlapping enables the procurement of approximate values for the distances and altimetries that were intended in the initial plan and these that were built. Given the nature of the cartographic manipulations that were executed, these values cannot be considered exact, but as references susceptible to comparison between each other.

[25] This dimension – 8.761m – is according to that which is indicated in the plan '*EMO I/I*, *Eixo Monumental, Locação Estradas* - NOVACAP, 1959'. The marking points from which the topography of the EM was created are indicated at 100 in 100m, and the legend's plan indicates that the coordinates are determined in relation to level 0.

Figure 4. Brasília - Plano Piloto | Eixo Monumental. Overlapping plan P.P.B. (Lúcio Costa, Competition 1957); Companhia Urbanizadora da Nova Capital, Planta aerofotogramétrica do Novo Distrito Federal, fls 15/16, esc. 1:25.000, 1958 (ArPDF); SICAD, esc.1:10000, 1997. Longitudinal sections, esc.1:50.000 (the author).

The content of these changes and its impact on the overall perception of space were verified through the comparative reading of both plans and longitudinal sections, following the EM in the direction of Lake Paranoá.

A. *Estação Ferroviária* (PPB|1957), current *Estação Rodoferroviária*

Just like in the competition, it is the point that *closes* the urban area, connecting it, by land, to the rest of the country. However, whereas in the PPB|1957 it was back to back to the EM, directly included in its design, in its definitive setting out the *Estação* was relocated west approximately 2.020m, which *removed* it from the composition.

Marking one of the instances in which pre-existence was decisive in its final localisation, this change is due to the attempt of the *Estação* to find support in the old route (the current EPIA) *'that connected the settlement of Santa Luzia*

[Luziânia] *to the villages of the north and northeast of the captaincy*' (Vieira Junior, 2010:43).

In either situation, the *Estação* is located on the hillside opposite the EM, not presenting itself as a visual element to the composition; on the contrary, its legibility is *hidden* from the city.

B. *Cruzeiro*

Situated at elevation 1.172, it is the highest place in the city, which gives it great formal, symbolic and programmatic importance. It houses the station (V8) from which the topographic mooring system of the *Plano Piloto* was created.

Although no reference is made to that physical circumstance, the PPB|1957 situated the *Praça Municipal* there, a square that apparently took over the width of the central strip of the *Esplanada dos Ministérios*, visually finishing off the EM. In this way, the space dedicated to the local authority – in opposition to the Federal Government, situated at the other end of the axis - visually dominated the surrounding territory and prominently emerged in the city skyline.

In the final project, the *Praça Municipal* moves 770m to the east and descends in elevation, losing its previous prominence. However, it remained as the compositional closure to the *Eixo Monumental*.[26]

C. *Torre da TV*

The *'radio station tower'* is the city's vertical reference. An expressive monument to modernity,[27] it is the highest point of Brasília and acts as its *belvedere*.

Although it was moved approximately 710m,[28] it conserved its initial height of implementation (1.126), an elevation that was possible to keep by means of an

[26] Subsequently, with the opening of the second access road to EPIA, this individualisation of the *Praça* and its role as a finishing element to the EM, were diluted.
[27] Extolling the significance of communication at a distance that radio and, particularly television, the forefront of technology at the time, can accomplish, the formal reference to the Eiffel Tower highlights the symbolic meaning of this monument-building.
[28] Associated to this movement, the orientation of the equilateral triangle that defines the support base of the *Torre* rotated 180º, providing the city with one of its sides instead of a vertex.

embankment of 9m. It can be considered that it creates, to the west of the EM, the boundary of the area subject to massive shaping of the ground.

If the executed embankment highlights the presence of the *Torre* and emphasises the interpretation of its foundation from the ground, it is also evident that it was calculated so that the top of the structure, at 224m in height, corresponds to the highest elevation of the ridgeline that surrounds Brasília, (1.345m, according to *'Altimetria Embrapa'*). Again, the overall topographic articulation seems to be decisive in the designing choices and shaping of the ground.

D. *Estação Rodoviária*

A tri-dimensional intersection of the brasiliense *Decumanus* and *Cardo*, the *Estação Rodoviária* is a most remarkable building-infrastructure, which assumes the greatest significance of local urbanity.[29] A distinguished topographic gesture, it marks the contact point and friction between the *Eixos Monumental* and *Residencial*, establishing the initial elevation from which the main 'circulation framework'- and thus, the whole city-, was generated.

Figure 5. *Marco 0 em Brasília* (source: Fundo Novacap, ArPDF). Image of the excavation site around the marker indicating the centre of the intersection of the Eixo Monumental and Eixo Residencial

[29] The *Estação Rodoviária* is the great connecting point, in terms of public transportation, from Brasília|Plano-Piloto with Brasília|satellite-city. About the building and its role in the city, see Rossetti, 2010.

The centre of the intersection of the two axis, known as '*Marco 0'*- a coordinate calculated by Jayme Zettel-,[30] imposed a '*9 or 10 metre cut*', resulting in a massive volume of land that was used for the *Esplanada*. Its setting out was moved about 800m in the direction of Paranoá and the final project, developed by Sérgio Porto, created a third level of excavation by directly connecting the *Asas* (Porto,1989; Zettel,2013)– the 'armadillo hole' –amplifying the embedding of the *Rodoviária* into the ground.

E. *Esplanada*

The *Esplanada* was designed and constructed as an extensive embankment.[31] A *Modern* podium, where the buildings are set on an embankment calculated by Anchieta Leal (1989), domesticates, in a very gentle slope, the ridgeline where it was built. Completely artificial and topographically manipulated, to ensure the desired '*monumental emphasis*' (*Relatório* PPB|1957), the *Esplanada* is higher than its surroundings placing the buildings and side streets at a lower level.

Organised into two sectors (the Cultural Sector and the Ministries), and extending between the *Rodoviária* and the *Palácio do Congresso*, it is one of the most affected areas during the project's execution. Those changes are not immediately legible given that the plan remained similar in appearance. They are, however, quite identifiable when considering the change of scale and subsequent perception of space.[32] The distance between their summits grew by about 300m, which represents 1/5 of the initial measurement, and if the

[30] '*Thus, I calculated coordinate zero... it was a starting point for everything... I remember when I saw that thing set in the ground, zero, and that number was an emotional thing. It had nothing, an open clearing, a zero written on a marker*' (Jayme Zettel, 1998).
The IPHAN resumes the centrality of *'Marco 0'* when in 2010 it commissioned the *'Mapa de Visibilidade do Horizonte do Plano Piloto de Brasília'*, prepared by the Centre for Geographic Imaging and Information of the Brazilian Army. This is a very peculiar survey that defines '*cones of vision'* from the *Rodoviária* – creating a new *'marco 0'* –, with the intention of assessing the impact of new buildings along the ridgeline of the surrounding hills.
[31] According to Jethro Bello Torres (2009), the *Esplanada's* embankment used up 5.900.000m3 of dirt.
[32] Another change to the *Plano* that interferes with the topography initially presupposed refers to the crossing of the *Esplanada* by route L2, on the boundary of the Ministries' sector. Resulting from the expansion of the residential sector to the east, it passes to a lower level that does not jeopardise the continuity of the *Esplanada* between the *Rodoviária* and the *Palácio do Congresso*.

transversal section of the platform remained at 600m, as stipulated in the PPB|1957, the central *parterre* was substantially extended –as a result of Oscar Niemeyer's design for the *Palácio do Congresso* having increased the expected size for the front of the building– going from 160 to 200m. Simultaneously, the buildings intended for the ministries, which increased in number, were shortened in length (from approximately 170 to 105m) and the transverse distance between them enlarged by about 60m. These changes, which broadened the central *void* of the *Esplanada*, markedly emphasised the monumental scale foreseen in the project plan.

However, the construction of the *Esplanada* did not fulfil the *'stone retaining wall'* described in the Report. And, today, the difference in height between its surface and the surrounding lower level, houses garages and warehouses built with no architectural concern, transforming the granite podium, which Lucio Costa defended,[33] into a kind of *back alley,* completely neglected.

F. *Palácio do Congresso Nacional* and *Praça dos Três Poderes*

The *Palácio do Congresso*, projected by Niemeyer, significantly altered the plan presented in the PPB|57.[34] Transitioning between the *Esplanada dos Ministérios* and the *Praça dos Três Poderes*, it is a project of great topographic acuity: the level of the platform/covering (1.063) that receives the small hills is carefully situated along the *Esplanada's* alignment (summit at elevation 1.066), functioning as its coping; regarding the building itself, it is accessed through an incline that connects the *Esplanada* to the *Praça dos Três* Poderes[35] through a delicately excavated area at the core of the surrounding embankment. The

[33] In an interview (1989) Sergio Porto says that Guimarães Filho (taking into account that the amount of soil taken from the *Rodoviária* was insufficient) considered the possibility of the *Esplanada's* embankment be placed between the central tracks, the remaining space would be handled by building a platform - '*specifically to the north, that is more uneven*' -, to be occupied by garages and other logistic support facilities. Lucio Costa was opposed to this, defending the '*stone retaining walls*' that he mentions in the *Relatório do Plano Piloto* (a solution that did not come to be, apparently due to cost issues).

[34] About this issue, consult Danilo Matoso and Elcio Silva, in *Brasília, the Palace of Congress and their urban changes*, 2012.

[35] This surprising operation, which proves the attention given to the topographic manipulation, became noticeable when the longitudinal section now executed on the axis of the *Esplanada* (over current cartography) was overlapped to the topographic survey of 1958.

latter, much like the central strip of the *Esplanada*, was resized, and the equilateral triangle that shapes it was amplified from 600 to 670m (Macedo:2012; Torres:1958/59).

Nearing Lake Paranoá by about 1.250m, in relation to what was initially intended in the PPB|1957, the *Praça dos Três Poderes* created an embankment that, at a generic elevation of 1.054, rises between 1 and 10m in relation to the surrounding ground.[36] In a demanding *shaping* exercise,[37] it levels and dissimulates the acute shape and the slope of the natural spur upon which it sits, providing the cerrado with an extensive front that was intended as the last built terrace of Brasília.

Finishing off the *Eixo Monumental*, where the city according to Lucio Costa comes face to face with nature, the *Praça dos Três Poderes* saw its vocation fade with the subsequent construction of multiple buildings around it, which diluted the boundary. With the figure and background blended together, the powerful effect intended in 1957 is substantially attenuated.

5. Artificial ground *designed over* natural ground

Concrete *versus* red earth, *nature* embracing the city: first, the *natural nature* of the cerrado and then the *artificial nature* of the lake, spreading out along the *original ground*.

The reflection of Brasília's celebrated sky on the water would be the physical and symbolic closing of the whole urban composition. This composition, sitting atop a *manipulated ground*, which condenses as an artefact carefully projected, where the *Eixo Monumental*, marked by architectural events *always* topographically considered, overcomes a difference in level of 118m.

[36] The square is supported by concrete walls rather than by '*stone retaining walls*' as Lucio Costa had intended. Here, the 'crib-wall' solution used seems to be an interesting contemporary take on the granite retaining wall.
[37] In his statement (1998), Guimarães Filho says that it was '*difficult to remove the Praça from the ground*' due to the '*steep decline*' of the existing topography: if at one of the tops there was a difference of 10m in elevation, on the other it was necessary to '*trim'* a bit of the ground to achieve a difference in level of 1m.

Brasília nestled itself in a trajectory that reveals the inevitable paradoxes between the *partido* devised by Lucio Costa, *'maquis of urbanism'*, and the reality that confronts it. A human fabrication sitting atop a shapely designed land, '*putting the city on the ground*' was, from a disciplinary viewpoint, the first and perhaps, under the circumstance, the most intense of these confrontations.

Acknowledgments

The supporting research to this article was conducted in Brasília (2012, May-August) at FAU-UnB and ArPDF, under the supervision of Sylvia Ficher and with the assistance of Wilson Vieira Junior, in the scope of a sabbatical conceded by EAUM. The research project was awarded a grant from FCT (SFRH/BSAB/1325/2013).

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SASOLBURG, A SOUTH AFRICAN NEW TOWN, 1951.
The 'Sasolburg pattern' at a crossroads.

Walter Peters
University of the Free State, Bloemfontein, South Africa

Abstract

Despite its minerals and wealth of raw materials, natural oil is a resource South Africa does not possess. But, it has vast deposits of low grade coal which can be converted for the production of synthetic oil and petrol.

Conceived in 1951 as the company town of the South African 'oil-and petrol-from-coal' corporation, Sasolburg is strategically located adjacent to vast deposits of coal, the Vaal River for supplying the large quantities of water required in the conversion process, and the principal consuming area of Johannesburg, some 100km northward.

The design was entrusted to Swiss immigrant architect-planner, Max Kirchhofer (1910-2011) to whom the "aim of making towns safer places to live in" was paramount. However, conditioned by the apartheid paradigm, in fact, two towns with similar concepts were built, Sasolburg for whites and Zamdela for blacks.

In both, main streets radiate from an inner ring road defining the central area free from vehicular traffic. While acknowledging its derivation from the Garden City and Radburn (1928), Kirchhofer devised what he termed the 'Sasolburg pattern' for the residential precincts. This pattern separates vehicular through-traffic from residential areas and, while the predilection for detached dwellings was accepted and other types of accommodation were correlated, a continuous system of wide, landscaped green strips, traverses residential areas affording pedestrian access to the primary school, shops and recreation club, and from one precinct to the other, keeping intersections with main streets to an absolute minimum.

Six decades on, the petrol-from-coal industry still flourishes, but concerns for personal safety have rendered the park strips a liability, exacerbated by the high garden walls now surrounding the houses which limit surveillance. The priorities of the new municipality are different and walkways and park strips are unkempt. An attempt has been made to infill the parks with housing to densify the town, and informal trading has changed the quality of the walkways in the centre of town. In the post-apartheid South Africa, the aim "of making towns safer places to live in" requires more than separating pedestrians from vehicles.

Keywords: South African new towns, Max Kirchhofer, Sasolburg pattern.

A town for the South African oil-from-coal industry

Despite its minerals and wealth of raw materials, natural oil is one of the few resources South Africa (SA) does not possess. It does, however, have vast deposits of low grade coal, which could be converted for the production of synthetic oil and petrol. For this purpose, initial investigations commenced with a 'white paper' published in 1927 and the passing of the Liquid Fuel and Oil act in 1947, before the government founded the SA Coal, Oil & Gas Corporation Ltd in 1951. This corporation selected for its plant and employees a site adjacent to vast deposits of low-grade coal in the northernmost tip of the (Orange) Free State province; the Vaal River to supply the large quantities of water required in the conversion process; and the principal consuming area of the Witwatersrand, Gauteng Province today, some 70-100km northward. The town's name is derived from the Afrikaans translation, ***S****uid* ***A****frikaanse* ***S****teenkool-,* ***Ol****ie- en Gaskorporasie* (Raper: 2004) but the suffix 'burg' appears to have been without particular foundation.

The featureless site lies in an elevated position at 1500m altitude, on a gentle gradient on the western flank of a dome-shaped hill, for which 2145ha (5300 acres) of farmland were acquired. The town would fringe a new inter-provincial road across the Vaal River to Vanderbijlpark, another new industrial town established as a duplicate of the Iscor (now Arcellor Mittal) steel plant in Pretoria, planned from 1942 onwards. Like Vanderbijlpark, Sasolburg was to be an 'open' town with property rights for its residents (Meintjes: 1975, 47). Water was available from seven boreholes and from 1953 it was pumped from the Vaal (Meintjes: 1975, 48).

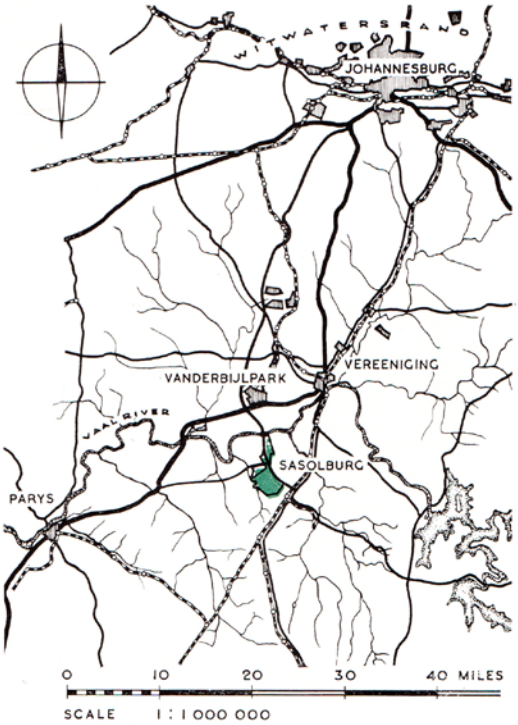

Figure 1. Location of Sasolburg relative to the Vaal River and Johannesburg (Kirchhofer: 1958A,19).

Planner, priorities and prescriptions

The design of Sasolburg in late 1951 was entrusted Swiss immigrant architect-planner, Max Kirchhofer (1910-2011), a product of the Swiss Federal Institute of Technology (ETH) in Zurich. As work was scarce and "storm clouds [were] brewing over Europe", Kirchhofer and his wife, also an architect, had left for South Africa during the 1930s and settled in Johannesburg. During World War II, Kirchhofer graduated from the part-time Planning course offered by Wilfred Mallows at the University of the Witwatersrand in Johannesburg (Cooke & Kirchhofer: 2010, 45-46).

While a few SA town planners might have been considered, it could not be established why the immigrant was commissioned with the design of such an important innovation as the company town of Sasolburg, save to say his training and skills in Zurich were of cutting edge. To Kirchhofer the "aim of making towns

safer places to live in" was "paramount", and he later qualified this priority: "By 1951 motor vehicles had become a cause for concern in SA towns. Incidence and use was much greater than in Europe and the trend was following the growth pattern of the United States. Vehicles were free to traverse any street spreading danger and disturbance into those parts, which by their function, had a claim to peace and quiet" (Kirchhofer: 1976, 68). Subservient thereto were three aspects which Kirchhofer labelled as being of "governing importance": free movement of main roads without interfering the beneficial occupation of the land; residential areas in self-contained units containing all that was necessary for daily living; and the creation of a coherent urban scene, wherever possible in the residential areas and certainly in the town centre (Kirchhofer: 1958A, 20).

However, due to the prevailing legislated segregation imposed by apartheid ideology, Kirchhofer actually designed two towns, Sasolburg in the north for a maximum of 20 000 whites and Zamdele in the south for 30 000 blacks. This was in itself an unusual brief as, although the planning of 'native locations' or 'townships' usually fell to the state or municipality, here it was integral with the planning of the company town. Nevertheless, legislation required that spatial separation and buffers be provided between the two population groups, which purpose was served by the oil refinery, another area of similar extent reserved for future petro-chemical industrial development, and the waste disposal grounds. Due to the constraint in site area, these industries are right opposite the initial residential areas of both town and township, which Kirchhofer mitigated with tree belts and parks.

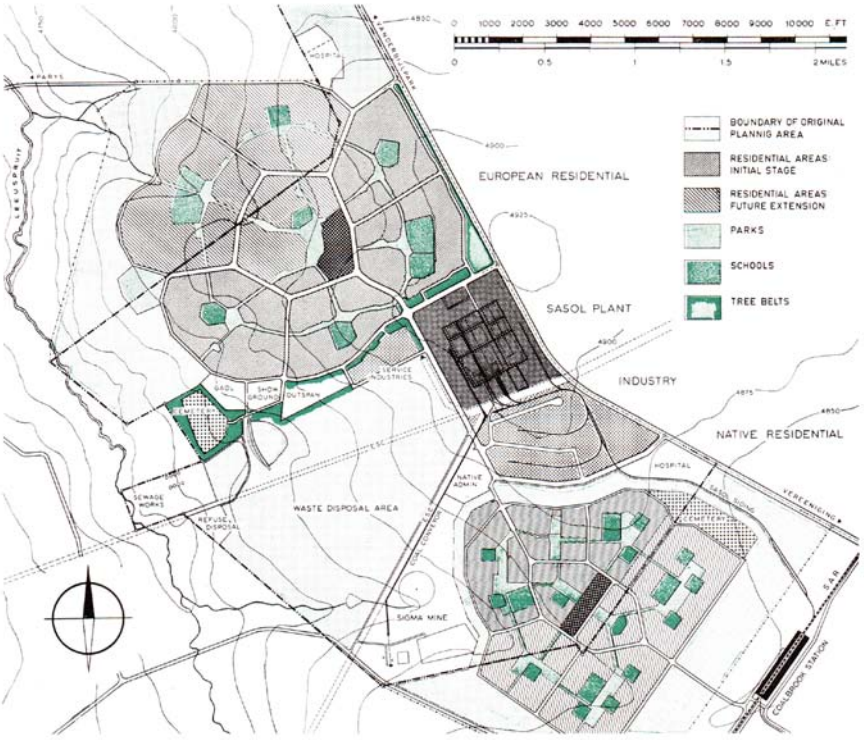

Figure 2. General layout of Sasolburg (top) and Zamdela (bottom) separated by the Sasol oil-from-coal plant (Kirchhofer: 1958A, 22).

Planning concept

Main roads radiate from an inner ring road, which partly defines the central area free from vehicular traffic. The five residential areas, which Kirchhofer termed precincts, lie within the meshes of the network of main roads. This pattern separates vehicular through-traffic from residential areas, which are traversed by a continuous ring of wide, landscaped green strips, affording pedestrian access to the primary school, shops and recreation club, and from one precinct to the other and to the central area, while keeping intersections with main streets to an absolute minimum. The green strips would effectively bring parks to the people, form continuous walk-ways away from the main roads where the "pedestrian is out of place" and break the spread of the residential area. Kirchhofer made the analogy: "Like rivers, [the green strips would] meander through the whole residential area and in their sweep unite the different sections" (Kirchhofer: 1958A, 24). The green strips also accommodate the

water and cable mains laid as rings, which principle also facilitates stormwater drainage. Service industries, including the cemetery, gaol and show ground, fringe the south-west of the layout with the hospital on the north-east.

While smaller, the plan of Zamdela follows suit. To quote Kirchhofer: "The requirements of the urban Native population are essentially the same as those of the white inhabitants. For this reason the layout is similar. In fact, the green strips in which all parks, sports fields and other recreational facilities are combined are even more essential. Not only is there a larger number of people to use the walkways, but there is urgent need for organising the sprawl of closely spaced cottages into smaller sections of creating a sense of locality. The bands of landscaped open spaces reach up to the homes and so set the stage for the development of community life" (Kirchhofer: 1958A, 27)

The initial two residential units of Zamdela were developed in accordance with the official standards of accommodation prepared jointly by the Native Affairs Department, National Housing Office, and the Building Research Institute. This included single-sex compounds for the accommodation of black men.

Developing the 'Sasolburg pattern'

Kirchhofer carefully examined two current examples of residential units, what he called the 'English pattern' such as the Welwyn Garden City (1920), and Stein & Wright's 'Radburn pattern' (1928) "created in an enthusiastic attempt to tame the dangerous motor car and put it in its appropriate place in American community life" (Kirchhofer: 1958A, 24).

In the 'English pattern' the feeder roads traverse the residential units to give access to "development streets" which in the shape of "loops, cul-de-sacs and courts" form the setting for the spatial grouping of buildings in a "restful atmosphere". Access points to residential units can be kept to a minimum so as not to interfere unnecessarily with the flow of traffic in the circumferential roads. However, shops, school and park are separated by traffic routes from the greater part of the residential area, which until the private car becomes the

indispensable medium of locomotion as in SA, concluded Kirchhofer, could develop into a serious problem, particularly where local shops attract traffic denser than that on the main roads (Kirchhofer: 1958A, 24).

In the Radburn pattern all thru-traffic is excluded; cul-de-sacs provide vehicular traffic access to dwellings which on opposite side face on to a footpath leading into a central park area. No car threatens safety or disturbs peace. However, if applied in SA, surmised Kirchhofer, such footpaths would at once be "decried as sanitary lanes in the condemnation of which householders, policemen and municipal officials [would] speak with one voice". But, the real problem, argued Kirchhofer, resulted from the "multiplicity of intersections along the main roads where vehicles turning into the residential cul-de-sacs impede and endanger the straight flow of traffic" (Kirchhofer: 1958A, 24).

In consequence, Kirchhofer derived the 'Sasolburg pattern', conditioned by his aim and the three aspects of "governing importance" stated earlier. Following these, he separated through traffic from "use areas" and limited links with the local street system to an absolute minimum. Hence local streets of each sector of a residential unit are inter-leading. It is unavoidable that children on their way home from school have to cross some of these streets, but the larger part of their walks is in the park strips which are reached through short pedestrian lanes placed at convenient points. Dangers would be considerably reduced, argued Kirchhofer, if residential sectors were 'kept small' with drastically reduced permissible speed limit – 64.36km/h (40mph) on main streets and half for the "short last lap of the journey" (32km/h). The latter was not introduced but the general speed limit in SA towns is 60 km/h (Kirchhofer: 1958A, 24).

The 'Sasolburg pattern' is unique with residential quarter cells bordered by main routes and green strips, with the result that only internal traffic is found within. Interestingly, the aggregate road area covers 22.3% of the residential area, saving 1/10 of the usual 25% (Kirchhofer: 1958A, 25). Access to schools, shops and the CBD was made easier for pedestrians and cyclists as the green strips are free from vehicles and the distance is shorter. One researcher quotes a woman who grew up in Sasolburg and recalled the green strips as spaces where "after 5

o'clock [in the evening], you found families on bicycles, families walking their dogs, old people walking hand in hand" (Sparks: [2011],7) . These were venues for relaxation.

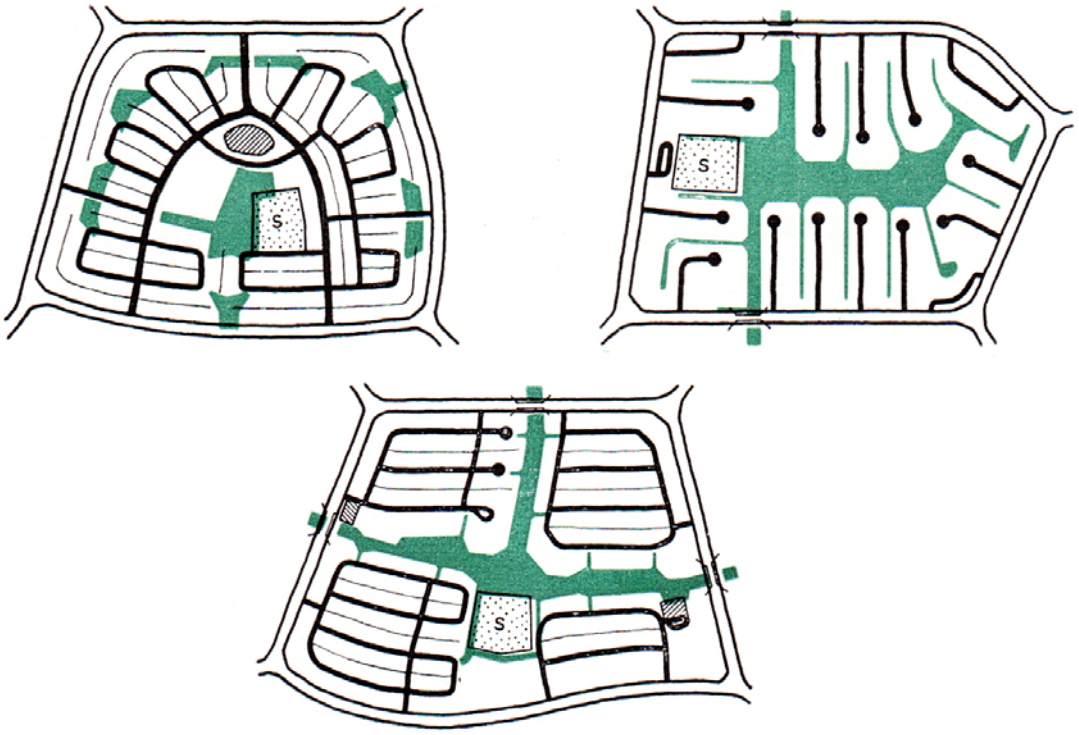

Figure 3. The English garden city concept (top left), Radburn (top right), and the 'Sasolburg pattern' (bottom) (Kirchhofer: 1958A, 22).

Establishing Sasolburg

It was decided that the initial residential area of Sasolburg should be established for 10-11000 whites, i.e. making up a crescent of the whole. Many residents would be young men and technically skilled immigrants recruited from Europe for the installation of the plant and whose families would follow, hence the need for hostel accommodation for whites with a mess (kitchen and dining facilities) and a recreation club with associated sports fields which were placed up against the provincial road. Couples would be accommodated in apartments and families in terrace housing limited to 2-3 storeys to maintain a close relationship

with garden spaces (Kirchhofer:1958A, 21) or, by May 1952, in the first 25 houses, named Rumble houses after the contractor (Meintjes: 2975, 48). However, by late 1953 the need for housing was so great that most unusually, white families were the first to occupy 192 houses in Zamdela! (Meintjes: 1975, 56).

Residential units, housing typologies, aspect and prospect

Kirchhofer had successfully argued that semi-detached houses have unusable side spaces and wasteful backyards, and were excluded as a residential typology, but to him, facing the favourable orientation was non-negotiable. Thus, wherever possible, residential streets were so orientated that the majority of building plots would permit houses to face north, a necessity in the SA interior. Where east and west aspects were unavoidable, sites were enlarged in width to allow greater freedom in the placing of buildings.

As per custom in white SA, detached dwellings predominate and cover 75% of the stands which vary from 708sqm (0.175 acre) to 2035sqm (0.5 acre). The average size is just over 1000sqm (¼ acre) while the minimum was a concession permitted on 20% of the stands “which size is still adequate for a cottage to be correctly sited in relation to neighbours and aspect”.

Yet, argued Kirchhofer, detached dwellings are “obstinate elements” to combine into an urban scene; they are “self-asserting” and often discordant in materials and colours. Hence, the attempt to relieve the “suburban jungle” with “correlated groups of houses” e.g. plots arranged in crescents, cul-de-sac and other forms of short sequences. The recommendation was to develop houses in groups and that the architects acknowledge these by using either a limited number of materials with varying layouts, or where uniform plans, by blending the colours into a modulated scheme. In this regard, Kirchhofer deemed the crescent of management houses in Kromellenbogen Street best (Kirchhofer: 1958, 24).

Open space as pedestrian circulation

Three quarters of the usual allowance of open space (10 acres/40 700sqm per 1000 persons) was allocated to the precincts but this was not dotted about in isolated parks but arranged in a continuous system of landscaped green strips which traverse the residential areas, generally in a circumferential manner, with radials reaching to the town centre. Nowhere less than 30m (100') wide and frequently broadening into bays for children's playgrounds and informal games, the green ways were to be the "everyday play and romping ground" (Kirchhofer: 1958A, 21) close at hand after work and school. These green strips afford pedestrian access to the school, shops and recreation club and from one precinct to the other, and constitute a system of walkways completely isolated from the dangers of vehicular traffic. Intersections with main streets were kept to an absolute minimum and pedestrian subways were recommended at these points but were never realised.

Park strips were intended to be planted with coarse lawn grass and a varying pattern of tees: avenues opening on to canopies of grove-like clusters; massive groups and tall specimen trees giving shade and accent at selected points; here and there a few shrubs and a bed of flowers, but on the whole, bold landscaping in contrast to the smaller scale of the gardens and street trees. Continuous parks so planted are economical to establish and maintain.

For the greening of the town, Sasol appointed horticulturist Aart Jurriaanse who had established a nursery nearby, at Abrahamsrust on the Vaal. As street-building commenced, trees were planted on both sides in Chinese elm, Chinese sycamore maple and five types of oak (Meintjes: 1975, 48). Not surprising, Sasolburg was chosen as Arbor Town of SA in 1991.

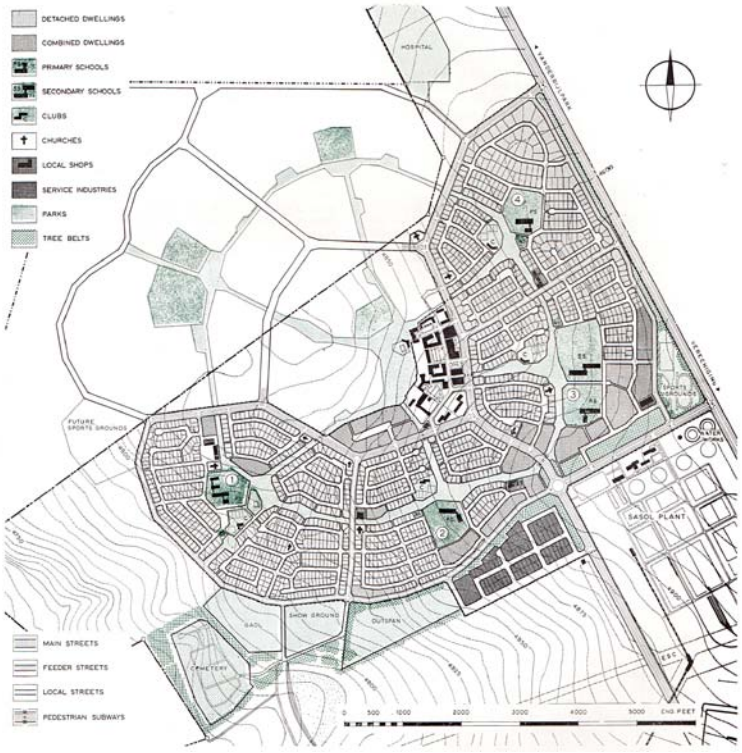

Figure 4. The initially developed crescent of Sasolburg (Kirchhofer: 1958A, 23).

Residential precincts catering for their communities

Primary schools were placed in the centre of each precinct within walking distance of less than ½ ml (800m) from the most distant dwelling, and every third precinct would include a secondary school. No main roads traversed on ways to schools. While Kirchhofer argued the subways were essential at the few points where pedestrian ways intersect main roads these never materialised.

Provision was made in each precinct for recreation in the form of a club site of some 12141sqm / 1.2ha (3 acres) in extent, to accommodate tennis courts, a bowling green and hall together with minor sporting facilities. Like the green strips, these would vest with the local authority as would sports fields outside the precincts, which cater for organised sport of the town as a whole.

Local shopping needs were catered for within the precinct: grocer, greengrocer, chemist, butcher, hairdresser, café as tobacconist, confectioner and newsagent.

These outlets were not placed in the centre of the precincts because they might disturb the quiet residential streets, besides, argued Kirchhofer, householders should be given a choice in shopping. Instead, these were located on the secondary radial streets between two precincts with easy access from the park strips, set back 12m (40') to enable off-street parking.

Sites for places of worship abound and were also designed for pedestrian accessibility, located on pathways or in bends in the main roads enjoying visibility. While the buildings of the dominant Dutch Reformed church were assigned no particular landmark position, let alone a church square as was the custom historically, Kirchhofer refused their request for additional parking space. He insisted, that churches were "organised on a parochial basis" at the level of neighbourhoods and congregants could (indeed, *should*) walk to church (Sparks, [2011],5).

Town centre

There were two main aims, first to "obviate intermixing" of pedestrian and vehicles which lead to a continuous system of walkways that penetrates the centre in the form of pedestrian lanes and sidewalks linked to the footpaths entering from the radial green strips of the residential precincts; and second, buildings sited to define the open space between them in squares and courts. No residential accommodation was provided in the town centre, probably in terms of zoning, which US precedent SA adopted.

The town centre is fringed by principal roads but separated from them by narrow green strips. Petrol service stations were placed at two of the four entrances which lead into the single internal street that joins several sections of the oblong layout. Parking was split into smaller areas of squares, which help articulate the group of buildings.

Shops need a compact layout with continuous rows of windows to generate an animated atmosphere pleasant to shoppers and beneficial to shopkeepers. Hence, despatch was arranged from courts around which shops are grouped. A

large site was earmarked for the dignified setting of the town hall. Workshops and warehouses were relegated to service industries.

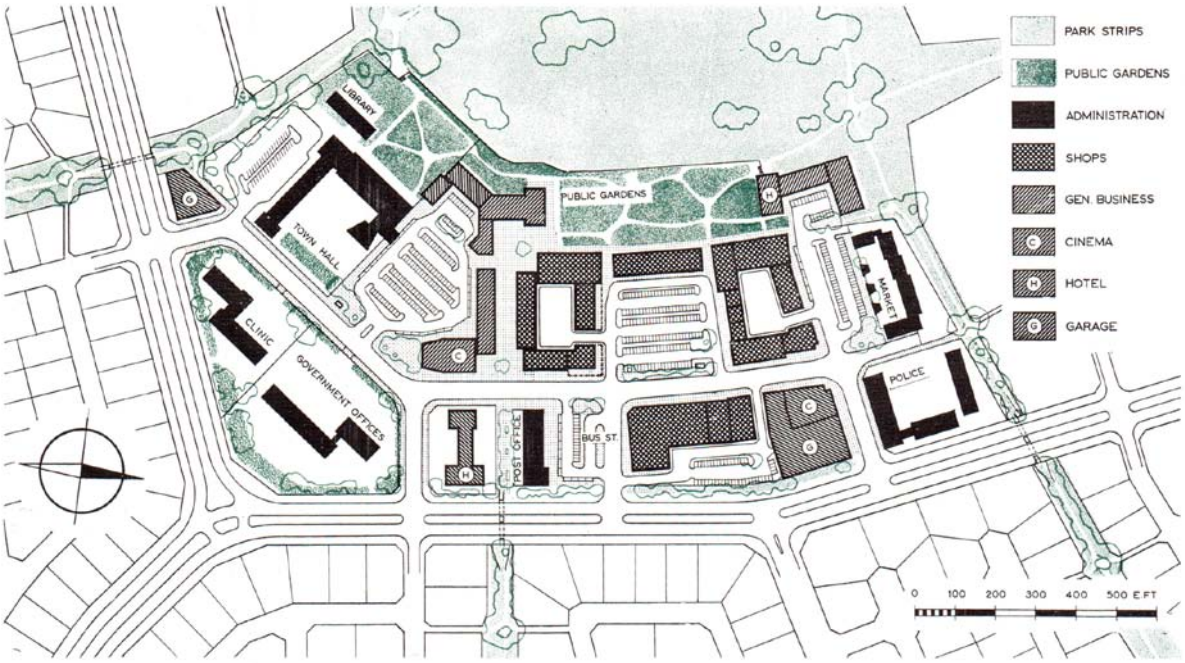

Figure 5. Plan of the central business district (Kirchhofer: 1958A, 26).

Afterword and conclusions

In SA, the planner leaves once a 2-D plan has defined the nature and extent of the use of the land in the conditions of title. Thereafter, the urban scene is assembled in a more or less "accidental manner". However, "realising that the lamp-post is as much part of a town as the underlying design concept", Kirchhofer was engaged in translating design into reality and was employed in a continuing advisory capacity, first by the company (Kirchhofer: 1958A, 30), and then, from 1967 when Sasolburg received municipal status, by the newly constituted municipality (Sparks, [2011],5).

Kirchhofer was thus able to design the changes needed to expand the central business area to accommodate shopping centres and supermarkets etc (c. 1980), essentially by mirroring the existing retail accommodation and

introducing a parallel road within the depth of the precinct defined by the inner ring road.

What is more, in the wake of the oil crisis of 1973/4, the SA government decided upon the founding of a second Sasol plant and town to make the country less dependent on the importation of crude oil. The location is some 140km west of Sasolburg, amidst the coalfields of what was the eastern Transvaal, now Mpumalanga province, and it was named Secunda (from Latin, *secund*) for being the second SA extraction refinery producing oil from coal, incidentally now the largest coal liquefaction plant in the world. The design of the town also went to Kirchhofer, who here based his planning priorities on the socio-economic condition of the present, which puts the emphasis on public transport.

But, installations of such national importance as the oil-from-coal plants at Sasol and Secunda are vulnerable. In 1980 white SA was stunned when MK (*Umkhonto we Sizwe*, the military wing of the African National Congress), launched an assault on the plant at Sasolburg, an attack that sent "balls of fire high into the sky and plumes of smoke that could be seen from Johannesburg". "Sabotage of the Sasol refinery was a major psychological victory for the insurgents" (Harrison: 2004, 85). Fourteen years on Apartheid fell and Sasolburg is accessible to all population groups. With that the 'new urban pattern that emerged in 1951' at Sasolburg is no longer providing the safety and convenience as intended. In fact the park strips have become a liability.

The municipality has other priorities and park strips are unkempt, a situation exacerbated by the houses now surrounded by high garden walls and block surveillance. In Zamdela the park strips appear under-used, and while an attempt at infilling with housing and densifying Sasolburg has yet to be evaluated, it could, unfortunately, put paid to the concept of the 'Sasolburg pattern'.

We must agree with Greig, town planning and the creation of the urban environment at Sasolburg balanced modern housing groups and associated recreational facilities with (white) SA characteristics, traditions and preferences, not with tenements or "shabby" rows of worker's cottages (Greig: 1971, 218).

The design of Sasolburg was a product of its time still waiting to be dragged into the 21st century. The aim "of making towns safer places to live in" today refers to personal safety, a desire even more elusive to achieve but now paramount.

Acknowledgement

This work is based upon research supported by the National Research Foundation. Any opinions, findings and conclusions or recommendations expressed in this material are those of the authors and therefore the NRF does not accept any liability in regard thereto.

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MAT BUILDINGS – GATED CITIES.
Critical, change and paradoxical phenomenon in last 20th century new towns

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Abstract

The paper aims to revalue and to compare two urban phenomena of growth and change during the second half of the 20th century: the Mat Building and the Gated City.

On the one hand, Mat Building is analysed as a modern strategy of spatial and formal organization in architecture, which is related to the concept of Mat Urbanism. This idea is rooted in the interest of TEAM X in the traditional cities of North Africa, Japan and China, among others, during the late 1950s and 1960s. In 1974 Alison Smithson defined this urban structure using the model of Arab fortresses called Kasbah: "where the functions come to enrich the fabric, and the individual gains new freedoms of action through a new shuffled order, based on interconnection, close knit patterns of association and possibilities for growth, diminution and change." Alison Smithson formulated an alternative to the functional city described in the CIAM´s Athens Charter. But she also proposed a new urban form, closed and opened at the same time, a kind of urban structure based on the necessity of identity and mobility.

On the other hand, the phenomenon of the Gated City is also closely related to the idea of urban identity. The CIDs (Common-Interest-Developments) began to emerge at the end of the 1970s, but actually, that idea was put into practice during the 19th century, as a reaction of utopian socialism to environmental and social consequences of the Industrial Revolution. In the context of the sprawling city, during second half of the 20th century, the New Urbanism also established its criticism to the urban ideology of the Modern Movement, as the TEAM X had done before them. However, unlike the previous one, this current used the paradigm of the walled medieval city, or Gated City, which was indebted to the anti-industrial manifesto of Rob and Leon Krier. They wrote: "function follows form", and not the opposite, as Louis Sullivan had said. Therefore, a purely picturesque approach to urban form was adopted, against the rationalism of the modern post-war planning.

The paper compares both strategies through European and North American urban developments. It analyses their spatial and social structures pointing their own relevance in contemporary urban discourse, and it provides a critical relationship between them, which is full of paradoxes and contradictions for the sustainable urbanism and the land-use planning challenges.

Keywords: Mat Building, TEAM 10, New Urbanism, Gated city.

1.

During the second half of the 20th century, urban planning has faced one of the periods of major change and growth of cities. Initially, the requirements of European post-war reconstruction caused the application of functionalist guidelines of the Athens Charter during the 50s. Then, as reaction during the 1960s, groups of younger architects, as the Team 10, led to a fertile and intelligent review with alternatives to the doctrine of the CIAM. At the same time, in parallel to these events of urban theory and critique, the reality was conducted by a rapid stretch of large cities. Especially in the United States, this period saw the emergent of a radically horizontal urbanism, driven by the enhancement of motorway and the suburban ideal of private housing. Meanwhile, in Europe, part of the debate focused on the role of the modern city and its relationship to the existing city.

From the contemporary point of view, our paper tries to revalue two urban process of growth and change of the late twentieth century: the *Mat-Building* and the *Gated City*, in order to analyse their spatial and social structures and to point their own relevance in contemporary urban discourse.

2.

In September 1974, coinciding with the 15 years since the founding meeting of the 10 Team in Otterlo, Alison Smithson publishes *How to recognise and read to mat-building*. Following the death of Shadrach Woods on July 31, 1973, the article makes a first assessment of the achievements of the group and it presents a sort of manifesto of a new emerging urban organization called *Mat-building*. This idea comes in the middle of the debate on the role of the modern city and its relationship to the existing city. The urban paradigm during post-war European reconstruction was a blend between the Garden City of Ebenezer Howard and the modern functional city derived from the Charter of Athens led by Le Corbusier. Team 10´s urban tendency considers the importance of the independence between roads and pedestrian walkways, which had already been used by Ludwig Hilberseimer in his *Vertical City*, (1924) or the analysis of traffic

flows of Louis Kahn developed for the Mid-Town Plan of Philadelphia (1953).

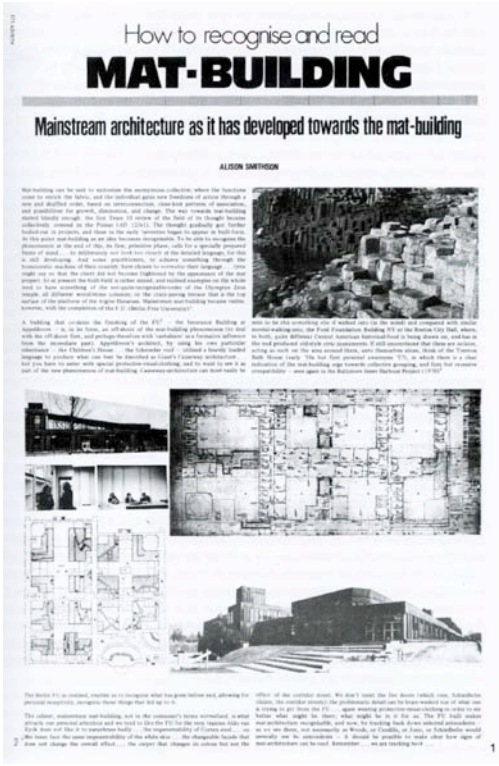
How to recognise and read
MAT-BUILDING
Mainstream architecture as it has developed towards the mat-building
ALISON SMITHSON

Figure 1. Smithson, A. (1974). How to Recognize and read Mat-Building. Mainstream architecture as it developed towards mat-building. Source: *Architectural Design*, no. 9.

The group Team 10, in general, and the Smithsons, in particular, analyse the city in terms of patterns of association, rather than in terms of functional organization as the CIAM had done. Their proposals bring forward the streets of London's working class neighbourhoods as inspiration for a new form of architecture and urban design. They understand the street as a stem of public life, an idea that is developed in the competition for a new housing block at Golden Lane (1952). Instead of Le Corbusier's *Unite d'Habitation* and its internal street, the Smithsons do emphasis the building as a cluster within a bigger organism, in order to create a network of continuous buildings arranged in a kind of cellular pattern. Their building would be articulated with "streets in the air", open galleries that provide access to flats, but at the same time also function as places for human encounter and interchange.

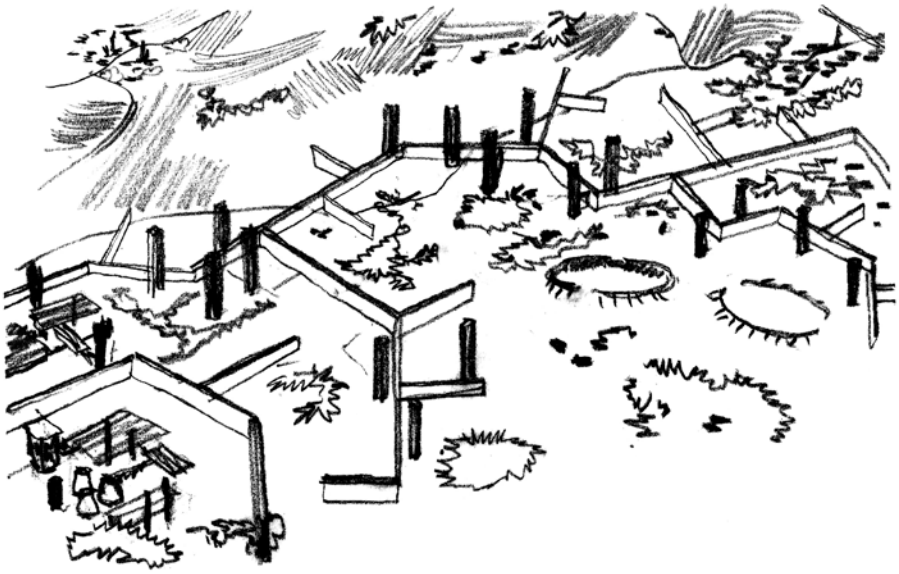

Figure 1. Competition for Golden Lane, 1952. Source : Smithson and Smithson, 2005.'

In 1974 Alison Smithson explains this urban structure outright, `*mat-building can be said to epitomize the anonymous collective; where the functions come to enrich the fabric, and the individual gains new freedoms of action through a new shuffled order, based on interconnection, close knit patterns of association and possibilities for growth, diminution and change*.´ (Smithson, 1974) Her words claim a multi-nuclear urban model that fosters social activity through control of urban density, a model that is able to grow and integrate large areas of public green space, and transform the chaos caused by the growing presence of the automobile into an ordered structure. Stan Allen has also insisted in these principles of mat-building: "*Its job is not to articulate or represent specific functions, but rather to create an opened field where the fullest range of possible events might take place*". (Allen, 2001, p. 122).

However, the term mat-building has different nuances and annotations by the Smithsons, who did not give a single clear and unambiguous definition of it, as Carles Muro has studied. In one hand, Peter Smithson talks about "*networks plans - so called mat buildings*" in ILAUD 1980 in Urbino, definition that stresses towards the objectual nature of architecture. When ILAUD´s texts from 1977 to 1990 are reviewed for publication, Peter Smithson corrects the term to "*layered*

net plan". In the other hand, in the original document Alison Smithson proposes an earlier meaning: "*Mat-Building: a newly invented connective urban arrangement*", emphasizing the planning aspects and the idea of urban landscape (Muro, 2011, p.45).

In fact, the term mat-building may represent the idea of building as mat, in the identification of the substantive character of 'building' or, conversely, if 'building' is understood as a verb, we would be talking about a way of create architecture, a formal system. The ambiguity of the term, together with the guidelines used by Shadrach Woods at the Free University of Berlin, "*groundscraper*", reaffirms the mat-building as horizontal extension system that promotes the exchange and the feeling of belonging to a community, a concept between building autonomy and connectivity in the city. The most importance projects of Team 10 as the Frankfurt-Römerberg centre (1963) and the Berlin Free University (1963) by George Candilis, Alexis Josic y Shadrach Woods seem to demonstrate that the ambivalence of the term. Their flexibility makes syncretism between architectural design and city project thoughts easier. This strategy provides potentially enriching exchanges for both architecture and city, linking the genetic identity of growth and change of the built form. In that sense, the ambiguity of the term mat building, has served to stimulate the imagination of many architects since then. Examples such as the Agadir Convention Centre (1990), Rem Koolhaas or the Yokohama International Port Terminal (1995-2002), Foreign Office Architects have used that ambivalence although do not represent themselves a mat-building. The suggestive flexibility of the architectural form together with the patterns of association, have revitalized interest in Alison Smithson´s article.

Mat-buildings are strongly influenced by the dense historical tissue of traditional cities. According to Alison Smithson, "*The systems will have more than the usual three dimensions. They will include a time dimension*". (A. Smithson. 1974). So mat-building conception also recognizes that authentic city culture is the product of many hands over an extended period of time. In particular, the traditional Arabic Kasbah fascinated the Smithsons; its rich texture is "*full of starts and stops and shadow… with a high degree of connectedness to allow for change of*

mind and the in-roads of time" (Smithson, 1974). A kind of urban structure whose spatial qualities became condensed into continuous structures of interlinked stems.

Apart from Kasbah, many other traditional urban tissues are quoted by the Team 10´s interest. Alison Smithson´s text weaves words and images of several historical cities and buildings. She goes back to pictures and descriptions of Villa Katsura, the necropolis of Saqqara, Deir-el-Bahari, Sinan, Honan, Fatehpur Sikri and the vaulted constructions of Greek and Arabic architecture, suggesting that architects should create together with ancient architectures and cities. Her text does not distinguish between chronologies or styles, between small and large scale. But it seems that it tries to build a kind of conscious lineage of mat-buildings in which the project for the Berlin Free University (1963), together with their own proposal for the reconstruction of Berlin-Hauptstadt (1957), are the main characters.

The project of Berlin-Hauptstadt is one of the best examples to understand the multifaceted character of the notion of mat-building. The project illustrates the Smithsons' ideas about mobility networks in post-war cities. According to the English authors, "*the urban forms of Berlin Hauptstadt have as their basis the idea of mobility, of absolute maximum mobility, achieved by a layered movement pattern that separates the various means of expression and gives to each its own geometry, its own formal expression.*" (Smithson and Smithson, 2005). Instead of divisions, which characterize the previous guidelines of CIAM's functionalistic cities, they suggest that new ways of mobility ask for new physical and architectural patterns of connectivity.

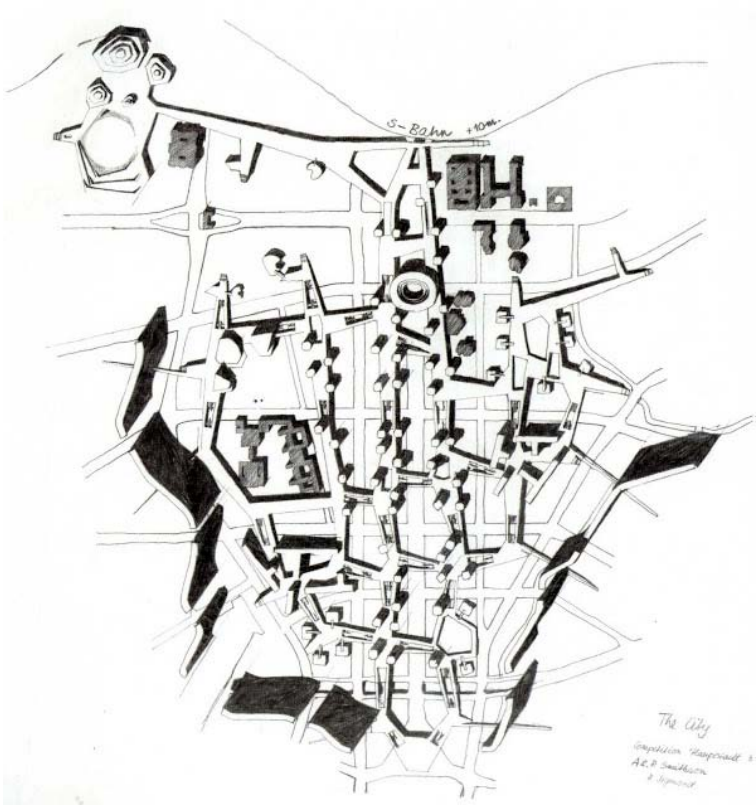

Figure 3. Competition for Berlin Haupstadt, 1958.
Source : Smithson and Smithson, 2005.'

The mat's indefinite circulation network is the project's generator. Its spatial organization takes the form of a multi-level grid with pedestrian walkways in upper level, and roads for vehicles in down level, linked by platforms and mechanic stairs. It reinterprets the traditional elements of the nineteenth-century city (streets, squares, buildings) to subordinate them to a new urban hybrid structure, which is building and city at the same time, resulting an open array type, different from previous historical models proposed by the Modern Movement. The paradox of this project is that far from integrating the new and the existing cities, it puts in crisis the model that in theory should pursue, that is the notion of *mat-city*. Interestingly, the architects propose a limit of buildings sinuous southward, which act as a border between the new city and the old one, being the only possible direction of free growth towards the Tiergarten. Therefore, in fact it emphasizes the idea of walled city as a model of inspiration. Rather than propose a kind of mat-urbanism able to expand indefinitely, Berlin-Hauptstadt is not intended to be sewn to the consolidated urban fabric and grow

in all directions. Under certain point of view, it is actually more like the examples of historical cities described by the Smithsons, a defensive city protected by walls, or buildings in our case.

Nevertheless, the ideas of Team 10 have a clear integrative intention. Berlin-Hauptstadt is not based on the traditional continuity with the existing urban fabric, but it is based on a strategy that gives continuity to the landscaped and topographic elements. It produces an artificial urban carpet that adds to the existing layer as a palimpsest. It conceives the city as public free space *per se*, open space and uncrowded, in which the network of elevated roads and park together form a unitary whole. It does not distinguish between city and green space integrating both of them.

Moreover, the value of the proposal for Berlin lies in the design of a strategy of city that will allow the development and growth not in terms of planning, but in terms of adaptation to the changing patterns of human associations. It represents an alternative to the Rationalist and American models of New Towns, unsuccessful attempts of a new urbanism based on responses contrary to the traditional city; centre of low density versus centre of high density built in height; integration of green spaces versus sprawl city; specialized ways versus hegemony of cars over pedestrians; multi-nuclear centres versus unique centre with radial growth.

Therefore, the ideology of the 10 Team, in general, and of the Smithsons, in particular, is built as a thought in permanent evolution where the gaze to the past plays a key role. Their ideas conceive the History of Architecture as the history of anonymous shared problems, expanding architecture temporally and geographically, which they qualify endowed with enormous capacity to adapt to change, regardless of use, location or appearance.

3.

Alison Smithson´s article is clearly retrospective but is not closed to future. Since it was written in 1974, cities have developed in unpredictable ways. If certain strategies of urban development described by the article have dead-

ended, others have become more evident mainly because of the inevitably raises questions of scale and speed of movement. Stan Allen studies the contradictions that emerge when mat-building projects –Berlin Free University, Venice Hospital, Smithson´s Kuwait Ministries- move up in scale from architecture to urbanism through *Mat Urbanism: The Thick 2d* (2001). Instead of the `cellular´ aggregates of the earlier examples, a new spatial structure based on `stem´ or `cluster´ patterns appears. These new organizational principles imply the necessity of transportation systems in a bigger scale, so it tends to spread out laterally dispersing density. According to Stan Allen `*if on the one hand, the Smithson were among the first to recognize the potential of infrastructure to influence the future development of the city, they also unwittingly endorse the conceptual apparatus of modern sprawl´* . (S. Allen, 2001, p. 124).

Today, a new city form has developed, more extensive and less controlled than the post-war English suburbs that inspired Smithsons´ work. Cities like Los Angeles have developed as vast as mat like field. Orange County in California, with 2000 square km, initially appears as an appendix to the big city, but eventually forms a homogeneous and indefinite monotonous urban region of streets, office complexes and shopping centres that spread out endlessly without identity. In that context, the phenomenon of CID (Common-Interest-Developments) or Gated Cities begin to emerge at the end of the 1970s. A CID is in fact an ancient urban form. Jill Grant precisely defines "*a gated community is a housing development on private roads closed to general traffic by a gate across the primary access. The developments may be surrounded by fences, walls, or other natural barriers that further limit public access*. (…) *Gated developments have an inside and an outside*." (Jill Grant, 2004, p. 913). These kind of fortified developments have become an increasingly common feature of contemporary suburban building patterns, especially in the United States[1]. Being eventually called architecture of fear, it is turning the urban environment into an

[1] By 2000, over 15 % ofthe US housing was contained within these common interest developments, and the number of units in these privately governed residential schemes rose from 701,000 in 1970 to 16.3 million in 1998. In 2002 the Community Association of America estimated that 47 million Americans were living in 231,000 community associations and that 50% of all new homes in major cities belonged to community associations. (Le Goix, R. & Webster, Chris J., 2006).

enclosed and private realm, which is a real challenge for space, organization and institutional order that shapes modern cities.

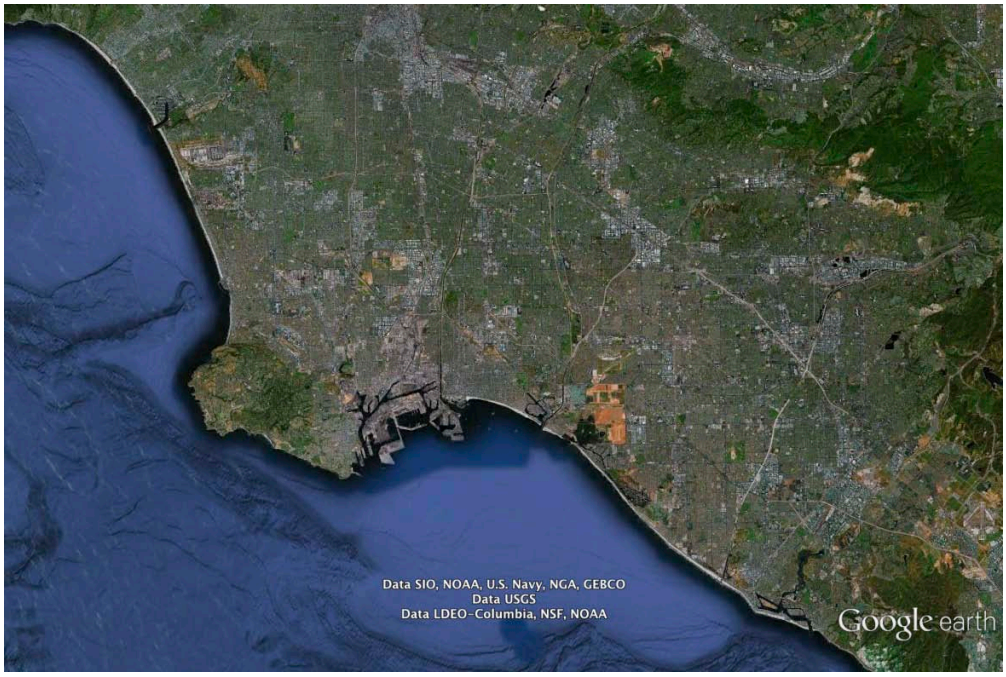

Figure 4. Orange County around Los Angeles. Source : Google Earth.

From an historical point of view, the idea of CID was put into practice during the 19th century, as a reaction of utopian socialism to environmental and social consequences of the Industrial Revolution. It is possible to find previous historical antecedents in examples of ideal cities of the Illustration. The city of Chaux, proposed by Claude-Nicolas Ledoux, a *ville sociale* partially built in the Royal Saltworks of Chaux (1775-79), near Besançon, would be a model for contemporary ghettos. Paradoxically, postmodern cities are becoming more defended, and more defensible, tan were industrial cities.

Considering the complexity of some CID because of their size, as it is *Hot Springs Village* in Arkansas, with more than 10,500 hectares, there are smaller CIDs that make us easier to understand the phenomenon at its micro scale. That is the case of *Seaside*, the small town at the cost of Florida where *The Truman´s Show* was filmed. It is a small holiday community founded in 1981 with 300 houses of homogeneous historicist appearance that seems to have been created expressly for this film. Andres Duany and Plater-Zyberk Elisabeth, architects and

professors in the University of Miami, design the urban plan of *Seaside* according to the ideology of the *New American Urbanism*. This is based on the recovery of characteristic morphologies of urban historical developments, such as Ebenezer Howard´s City Garden, and also based on the use of vernacular typologies for suburban areas. These architects reject the uncontrolled growth of large American cities and argue for models with recognizable identity as Oak Park, in Chicago, or Coral Glabes, in Miami, that inspire them. Mainstream is also indebted to the anti-industrial manifesto of Rob and Leon Krier of the 60s, due to their exclusively artisanal approach for the generation of urban form against the militant rationalism of modern urbanism in post-war. According to them `*function follows form´*, and not the opposite, as Louis Sullivan had said. Therefore, The New American Urbanism also establishes its criticism to the urban ideology of the Modern Movement, as the TEAM 10 had done before them.

Figure 5. Seaside, as a film set called Seahaven. Source: Peter Weir (1998), *The Truman Show*.

Analysing CID´s tendency in a macro scale, researchers have pointed that in areas as Los Angeles, gated cities help to stabilize the financing of urban growth, to redevelop aging neighbourhoods, to maintain social diversity, to conserve non-renewable urban resources, and to encourage reinvestment in urban infrastructure. According to Renaud Le Goix and Chris Webster, who explore the political, financial and environmental sustainability of private communities:

> The regional diffusion of gated communities is related to suburban growth, an endemic anti-fiscal posture, and municipal fragmentation. (…) Although urban sprawl has generated an increased need for infrastructural development, property tax limits and fragmentation have reduced local governments financial resources. As a result, gated communities, which bring wealthy taxpayers at minimal cost, have become the perfect cash cow for local municipalities (…) By providing their own security, infrastructure and services; these developments reduce public financial responsibility. As compensation, homeowners are granted exclusive access to their neighbourhoods; a condition which enhances location rent and positively affects property values. Thus, these developments are instrumental in transferring the cost of urban sprawl from public authorities to private developers and homeowners. (…) This illustrates the point we have already made - that the club neighbourhood is an institution that can help sustain city growth by unlocking more resources for collective goods and services. (Le Goix & Webster, 2006)

However, these supposed economic gains are not made without social costs and spillovers. Thinking that opened cities are land-use systems consisting of interpenetrated private and public spaces governed by complex patterns of property rights; to break down municipal management into smaller gated cities might bring clear urban and social risks. In one hand, without planning supervision, private transactions generate spillover effects, such as material and auditory pollution, road congestion, and underused land. In other hand, resident filtering occurs often when restrictive covenants and property values limit potential candidates to join the CID. The result is social fabric homogenization by wealth, age, race and status. So this micro regulation through private covenants and exclusionary zoning further increases social segregation.

Even so, it is not possible to generalize the problems and benefits generated by the gated cities because they change depending on the size and type of CID. Blakely and Snyder´s research Fortress America. Gated Communities in the United States (1997) provides one of the most thorough investigations of gated communities available, and presents the most frequently discussed typology of

the phenomenon. They identify three types of gated community according to: lifestyle, prestige, and security zone communities, with their own circumstances. *Lifestyle communities* focus on leisure activities with recreational facilities, common amenities, and shared services at their core. *Prestige communities* serve as symbols of wealth and status for image-conscious residents. And *Security zone communities* close off public streets to non-residents. Other authors as Jill Grant in Types of gated communities (2004) have further provided a wider range of types of gated cities including new parameters as functions of enclosure; kind of security features and barriers; kind of amenities and facilities included; type of residents; tenure; location; size; and policy context. His work gives the key indicator that not all CIDs are solutions for economic and social elites, but they are also employed by public institutions as instruments of urban and social control. Thus, it is increasing the number of CIDs that due to the promise of a cheap housing, they finally confine disadvantaged groups into their own urban enclosure.

The phenomenon of the gated city is today as global as the own expansion of cities. Europe, Asia, Africa and South America have adopted the model to their own circumstances. Some gated cities promote extreme protection, as it is in the case of Alphaville, a gated community outside São Paulo, Brazil, has all of the facilities needed so that people can avoid venturing into the streets, where they worry about crimes such as murder and kidnapping. Others cities may provide potable water or other services, in some Third World locations. And seasonal cottage developments may have private roads that are impassable in winter when routes are covered with snow, and full-service master-planned communities offer shopping malls, schools, industry, recreational departments, and police. In this sense, cities associated with golf courses are a separate chapter. For example, De Haverleij, in the Netherlands, is paradigmatic because of its 180 hectare of golf courses and groups of castles of medieval appearance which operate as resorts. The author of this plan is Sjoerd Soeters and the author of the largest of castles, called Slot Haverleij, is Rob Krier. The whole design is clearly inspired by other military city-building as was the palace-fortress that was built by the Roman emperor Diocletian in Dalmatia at the end

of the III century BC. The example is a new step forward for the New Urbanism and the principles of gated city.

Despite of the wide range of CID´s requirements, there are two parameters shared by all of them. First, they have proliferated motivated by the effects of the uncontrolled sprawl city. Second, they have taken advantage of the paradigm of the medieval walled city to solve their problems. The new-gated communities are remarkably like medieval fortress, constructed to keep the hordes at bay. Perhaps the most important function of medieval gates was to control access to the city to collect taxes and manage trade. Concern about controlling traffic and pedestrian access remains a key issue for the inhabitants of gated enclaves. The gate provides part of what might have called the *architecture of control*, both for those inside and those outside: it reinforces the need for surveillance and the importance given to a social order, even if it is discriminatory.

4.

By exposing the evolution and characteristics of mat-buildings and gated cities, this paper has tried to outline advantages and deficits of them that may offer renewed interest for contemporary architecture and urbanism. The very essence of mat-buildings and gated cities is represented by their common interest about architecture of relationships rather than architecture of forms. Stan Allen´s notion of *mat-urbanism* shares aspects with the idea underneath them, `*their form is governed more by the internal connection of part to part than by any overall geometric figure. They operate as fieldlike assemblages, condensing and redirecting the patterns of urban life, and establishing extended webs of connectivity both internally and externally*.´ (Allen, S., 2001, p. 122). Both strategies take advantage of urban organizations like cluster, stem and mat, but with remarkably different results due to issues of scale and identity. Alison Smithson wrote: `*The systems will present, in their beginning, an even over-all intensity of activity, in order not to compromise the future*´. (Smithson, 1974) and it is precisely this lack of commitment with future that may have been a shortcoming of these trends.

Team 10´s mat-building relocates modern architecture within the tradition of urban form, breaking with the functionalist isolation of the guidelines of the Modern Movement and CIAM. Structural aspects found in the mat-buildings (overlay, continuity, identity, flexibility) are shared with the historical urban fabric. Therefore, they represent a certain return to the old city, after the urban ostracism of the avant-garde. But while those ingenious proposals arise, it would have been plausible to wonder about the critical size that the growth of mat-building may have. In the one hand, the Smithsons were among the first to recognize the potential of infrastructure to influence the future development of the city -under certain point of view, Le Corbusier also shares that merit- nevertheless, in the other hand, they have also unwittingly endorsed the conceptual apparatus of modern sprawl.

According to Jaime Ferrer "*In theory, the mat typology offers a flexible framework for relating to a site through, an uninterrupted continuation of the urban fabric into its own spatial network*". (Ferrer, J. 2011) But in practise, today, it seems that the notion of urban mat and cluster, understood as a link in a chain of urban spaces, has been replaced by the idea of fortress, in response to the uncontrolled sprawl of the contemporary city without identity. Mat-buildings and gated cities demonstrate that architecture´s mediating role becomes increasingly difficult to maintain in a sprawling urban context; so new strategies are required.

Acknowledgments

This paper is developed at CEAA | Centro de Estudos Arnaldo Araújo da ESAP, with FEDER funds by the Operational Competitiveness Programme – COMPETE and national funds by FCT – Fundação para a Ciência e Tecnologia, within the project PEst-OE/EAT/UI4041/2014.

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WHEN ARCHETYPES GENERATE UNCERTAINTY
The case of the scattered metropolis

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Abstract

In the Low Countries, most of cities have been established during the Middle Ages, while the density of their location at large scale is identifiable since at least the early Renaissance – notably on the maps of the Dutch cartographer Jacob van Deventer. During the modern period, some concepts have locally influenced the configuration of Belgian urban cores – for example, the Leopoldian Park System and the Garden City movement in Brussels, or the modernist proposals for the Borgerweertpolder in Antwerp. However, few of them explain the evolution of Belgium after World War II, most specifically the spread of urbanization that gave rise to a large-scale urban configuration formed by major Belgian networks and centred on Brussels. It's thus the land administration process in itself that should be investigated, rather than the influence of any theoretical figure or archetype. By focusing on open spaces and infrastructures – first by commissioning railroads and waterways, after by creating a Road Fund (1955-1964) and by promulgating strong planning laws (1948, 1959, 1962) –, the instituted actor-network and its borders created indeed a 'scattered metropolis' despite the existence of a radio-concentric land division system. If, at local scale, Belgian cities seem to refer to archetypal configurations, at large scale, they are therefore no longer singular, local territories but administered ones, at the bidding of administrative circumscriptions that do not correspond to their physical boundaries. In other words, they are united in being subject to the effects of the State and to its capacity to shape forms in situ*. As a consequence, in the present case, there is no point in talking about 'cities' in meeting the theoretical and environmental challenges of the urbanization process. The difficult mixture of morphology, topography and politics it represents imposes an empirical approach of the articulations between 'physical territories' and 'administered territories'. Such an approach aims to elucidate an ongoing anthropological contradiction of Modernity in a globalizing world: how to deal with spatial and conceptual processes of delineating in a context of struggle for legitimacy and resources?*

Keywords: thick description, scattered metropolis, productive landscape, planning

Uncertain archetypes

The territories stretching from northern France to the southern Netherlands – which include Belgium – may not wish to reveal themselves easily. On a small scale, their morphologies are certainly very similar to many other historic European cities. However, on a large scale, their configurations clearly distinguish themselves from other processes of urbanization. In these territories, urban systems remain 'open', to such a point that it becomes difficult to distinguish between urban centres and sparsely populated rural areas, or even to differentiate man-made interventions from natural landscapes (Van Hecke, 2009; Beyaert, 2006; Kesteloot, 2003; De Meulder, 1999).

As a consequence, viewed from the spatial framework defined by the body of city planning literature, the numerous cities that make up these territories could appear to be a constellation of small settlements that persisted over time with no significant changes. However, when we look at them as a large-scale network, they very prove to be an unprecedented situation that competes with highly centralized processes of urbanization, especially in terms of population density and economic competitiveness (Secchi & Viganò, 2011; Grosjean, 2010).

On this account, particular stress should be laid on the comparison between this particular situation and the Paris Basin. Consideration of two geographic frameworks focusing on each of these urban configurations indeed reveals a surprising factual reality. Given that such frameworks have the same area (45 000 square km) and population (approximately 16 million people), they show that, in contrast to the situation of Paris, the future of the inhabitants of the *scattered metropolis*[1] does not just depend on one radio-concentric urban model, but on political decisions related to various networks and scales of power (see Figure 1).

[1] This term refers to the elliptical configuration formed by major Belgian cities, plus the Lille conurbation and the southern Netherlands.

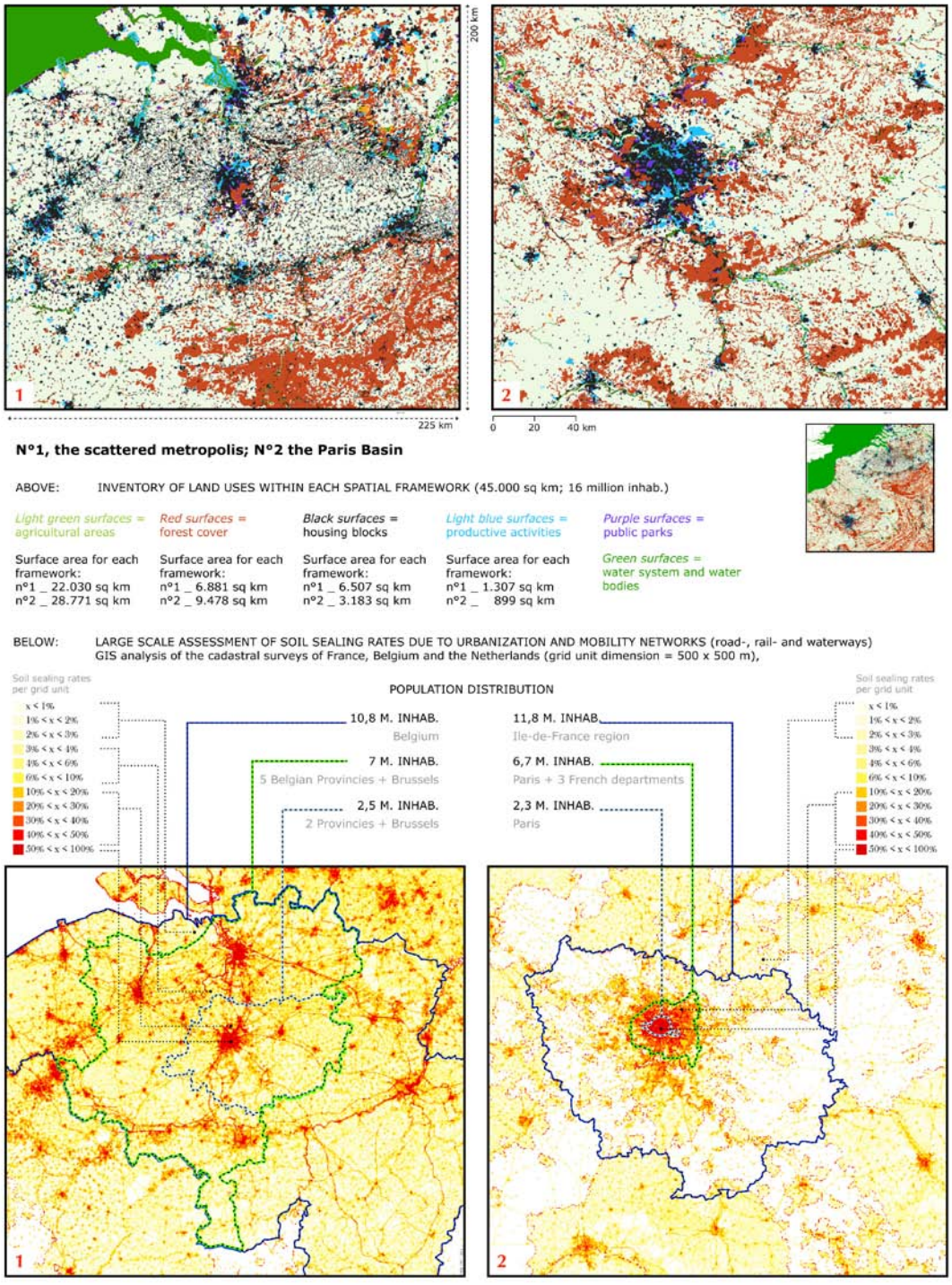

Figure 1. *The scattered metropolis and the Paris Basin, a geographical comparison.* This figure summarizes the factual findings related to the comparison of land uses, population distributions and soil sealing rates within two spatial frameworks focusing respectively on the scattered metropolis and the Paris Basin. These frameworks have the same area and population (sources: AGDP, 2009; EEA, 2006).

The widely dispersed nature of the scattered metropolis has very concrete implications for planning practices. For example, all other things equal, the total building footprint of the Paris Basin covers 486 square km (i.e. 31.476 inhabitants per square km within built-up areas) while that of the former 'Low Countries' is three times greater, with a footprint of 1.264 square km (i.e. 13.251 inhabitants per square km within built-up areas). Due to these high rates of sealed areas, not only the socio-economic consequences of planning decisions related to the built environment are difficult to tackle, but agricultural systems, open spaces and water supplies call also for increased attention. For example, within the scattered metropolis, the forest cover is almost one-third less than in the Paris Basin (7.085 square km vs. 9.794 square km). While the level of agricultural production per square kilometre of agricultural land needs to be 1,4 times higher to feed the same population (Roland, 2013).

It's easy therefore to understand that the spatial frameworks and the scales dedicated to studying and understanding the urban system under consideration here may prove to be highly sensitive and discriminating. As a matter of fact, when one tries to evaluate and manage this metropolis of 16 million inhabitants with spatial concepts drawn up from the archetypal model of the 'centralised' and 'centralist' city, a substantial part of the problem is being evade from the outset. Indeed, not only a large proportion of the urban population is not included in the chosen spatial framework, but the social, economic and environmental impacts are examined from one single centre when in fact they are several others. To paraphrase Bernardo Secchi: in the present case, the mythical image of a territory consisting of urban cores planned so as to stand out from their rural and natural background has become inoperative (Mantziaras, 2008; Corboz, 2001).

This article is thus about the performative utterances inherent in figures and archetypes used to present the work of 'naturalization' and 'culturalization' of spatiality. By retracing the history of the scattered settlements that characterises Belgium, it emphasizes the role and importance of spatial delineations that belong to the field of planning and architecture theory.

The inception of the scattered metropolis

1713-1830. From 'divide and rule' to 'connect and rule'

In Belgium, the scattered nature of the built environment is nothing new. Since at least the early 18th century, a tightly-meshed network of medieval cities and villages is already in place in both the Meuse and the Scheldt basins (see Figure 2). Such a network has mainly its roots in the work undertaken during three historical periods: the reign of the Habsburg (1713-1789), the French occupations (1792-1814) and the annexation to the Netherlands (1815-1830). During those times, successive governments undertake structural reforms: the construction of inter-city paved roads (followed by the provision of crossroads), the fragmentation of farmland properties for productivity issues and the strengthening of administrative consistency between the existing provinces (Grosjean, 2010; Beyaert, 2006; Lemoine-Isabeau, 1998, 1989 & 1984; Danckaert, 1989 & 1967).

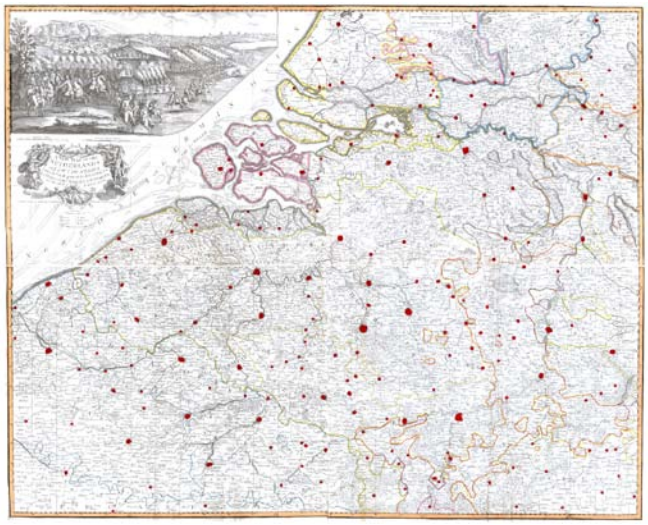

Figure 2. *A new map of the Netherlands or Low Countries..., 1794, Laurie & Whittle, London.* The figure gives an overview of the distribution of urban cores during the last quarter of the 18th century. Even at that time, urban morphologies are extremely close together. Through the establishment of an efficient transport network that connects them, the *Ancien Regime* players will therefore lay the foundations for the scattered metropolis (map source: David Rumsey Historical Map Collection; the original map has been edited).

Following the creation of the Belgian State (1830), such an urban network plays a particular role in the transformation of economic relationships between major cities and their hinterlands. In the earliest stages of the industrial revolution, it stimulates a regional economic model instead of encouraging a massive rural exodus. This is particularly true in the textile sector established around Ghent and Liege where there is a strong interaction between urban initiatives and the mechanization of rural economy. In this instance, the notion of autonomous urban cores could therefore be outdated from the outset (Tempels, 2011; Beyaert, 2006).

1830-1880. Preparing the ground for dispersal

In spite of these developments the first real signs of a strictly speaking 'scattered process of urbanization' are not apparent until the last quarter of the 19th century. Contrary to what one might think, it then doesn't take place on the outskirts of an urban core, but on a much wider area: the Charleroi mining basin situated about 60 km south of Brussels (see Figure 3). In this area, worker housings and urban typologies become rooted in direct relation to the setting up of mining concerns, whatever the existing urban morphologies.

Of course, at that time, such a process is not widespread. For example, it does not yet apply to Brussels, which follows a more traditional and centralized model of development until the early 20th century, in line with other major European industrial cities. But what is important is that these two development patterns (scattered/centralized) take place simultaneously, calling into question the centralizing function associated with the archetype of the city and its role in the modern urbanization process.

As a matter of fact, this dual phenomenon is primarily due to a consistent expansion of transport infrastructures, most notably waterways and railways implemented respectively between 1800-1880 and 1834-1873. Such transport networks not only increase transmission capacity between the existing urban cores and production sites, they also connect them in a sustainable way with seaports and hubs (notably Antwerp), involving the whole spatial structure in the production process. Ample evidence of this is then the increasing

concentration of urban forms along the axis connecting the Sambre-Meuse and Scheldt basins (notably alongside the Antwerp-Brussels-Charleroi canal) up to the end of the Second World War (see Figure 3 & 5).

Figure 3. *A graphical representation of the inception of the scattered metropolis from 1830 to 2009.* The figure provides a classification of cadastral parcels on the basis of their building year (source: AGDP, 2009).

1880-1945. Shaping the landscape through infrastructure networks

The existence of an historic mesh comprising numerous cities and villages (see Figure 2), combined with the establishment of an effective network of infrastructures (see Figure 5), are therefore two key elements in understanding the genesis of the scattered metropolis. Once established, the connection between Charleroi and Antwerp indeed becomes a driving force on the scale of the newly declared State (see Figure 3).

Such a north-south industrial axis is then strengthened by two factors: the setting up of a lightrail-network and the enactment of a series of planning policies, notably the Workers' Dwellings Act of 1889 and the creation of the National Society of Small Landholding in 1935. Between 1841 and 1956, the lightrail-network connects industrial flows with the existing urban mesh, while the above-mentioned policies stimulate the purchase of housing along the lines of this network, allowing not only a non-concentric distribution of buildings, but also a situation running counter to the well-known phenomenon of rural exodus (Grosjean, 2010; De Meulder, 1999).

As a result of these investments in connectivity, by the end of the 19th century, differences in costs of property between cities and rural areas become the main defining factor of the settlement pattern of the scattered metropolis, much more so than the historic forms of the cities that make it up. This applies, of course, on a large scale (see Figure 5), but the same is true on a city scale (see Figure 4). For example, in Brussels, within the sphere of influence of the Garden City movement, an asymmetric spread of urbanization emerges as soon as the 1880s (Dubois, 2005; Smets, 1977).

Supported by the investments in land and infrastructures made by King Leopold II and aristocratic families, this localized phenomenon of dispersal extends up the edge of the Sonian Forest[2] by the 1880s, privileging open landscapes and railway transportation lines rather than continuity and urban integration (see Figure 3 & 4). Therefore, within a few decades (1861-1930), new transportation

[2] The Sonian Forest is a deciduous forest situated on the outskirts of the Brussels agglomeration. From the *Ancien Regime* till the mid-20th century, the growth of the capital is clearly based on its physical, economic and symbolic value (see Figure 4).

arteries and single-family dwellings connect the historic urban core with existing construction land situated to the northeast of the capital, thereby reinforcing the competitiveness of a large part of the hinterland (Roland, 2012; Jaumain, 2009; Demey, 1990; Ranieri, 1973).

Thus it might be said that, in this particular case, the city and its surrounding open landscape are no longer opposing polarities, but rather two planning determinants which serve the intentions of a coalition of hegemonic stakeholders operating on a regional scale. From the second half of the 20th century, it is precisely this type of development that will act as a model at the scale of the entire scattered metropolis. The artefacts of the industrial revolution will then spread out across a large geographic area (see Figure 3 & 5), not only that associated with cities' suburbs, but that of entire regions directly linked to the very organization of the State (Zitouni, 2010; Van Hecke, 2009; Maziers, 1994).

Figure 4. *A graphical representation of the scattered urbanization of Brussels from 1830 to 2009.* The figure provides a classification of cadastral parcels on the basis of their building year (source: AGDP 2009).

1945-1970. The laying out of a productive landscape

Although the first signs of a modern scattered process of urbanization occurred within the Meuse River basin (see above), after World War II, this process is mainly developing and strengthening within the Scheldt River basin (see Figure 3 & 5). At that time, it is no longer the result of a movement of industrialization whose location is determined by the distribution of raw materials. This new phase of the scattered settlement frees itself from site-specific constraints by making full use of mobility networks and by reorganising gradually the production system around the light industry and the tertiary sector – i.e. a series of economic activities that are independent from local resources.

In the northern part of the scattered metropolis, the spatial dispersal of buildings and activities will then increase considerably and this to a scale that has not been seen before. It is then directly in keeping with post-war Fordism favouring the creation of single-family housing estates and public housing blocks on the outskirts of urban areas, and in some cases even in remote areas. This occurs by means of a shift from rail to road[3], but also by means of two laws: the De Taeye Act[4] of 1948 and the Brunfaut Act[5] of 1949. Their spatial impact is particularly clear on Figures 3 and 5. Until the 1950s, it takes the form of a dispersed urban fabric gradually covering the open space that develops between cities (Dubois, 2005; Kesteloot, 2003).

Such an intermediate configuration (i.e. urban forms across open spaces and landscapes) play a fundamental role in terms of planning. By establishing and confirming an in-between situation between major cities (Brussels, Antwerp, Ghent) while including intermediate ones (e.g. Aalst, Dendermonde, Lokeren, Sint-Niklaas, Bornem, Willebroek, Mechelen), it allows in subsequent decades a spatial dispersal of economic activities far beyond the historic urban/rural divide.

[3] In 1950, the European Agreement on Main International Traffic Arteries (AGR) was signed. Belgium is then considered as the nerve centre of a dense highways network and as a hub between France, Germany and the United Kingdom. A Road Fund is thus created in 1955. From 1964, the investments it makes change the whole face of the scattered metropolis (see Figure 5).
[4] The De Taeye Act encourages private initiative for the construction of affordable dwellings and the purchase of small pieces of land.
[5] The Brunfaut Act organises public investments in the area of housing, in particular via the financing and development of a national housing fund.

During the golden years, the continuation of the dispersal of housing and population – which is at that time considered as a mass-production issue – combined with the freedom of movement offered by car provides therefore the very basis for a new territorial economy.

As a result, contrary to other European configurations, the productivity of the territory will no longer be reduced to centralized frameworks determined from each urban core. Rather, it will be regarded as a matter of State policy. Most specifically it will express itself on a spatial level that is directly linked with the authority of the State – and perhaps even that of several States[6]. As proof of that, we can mention the planning instruments of the Organic Act of 1962[7], but also the promulgation of the expansion laws of 1959 and 1970, both based on the attraction of inward investments.

On balance, these institutional determinants – often legitimized by concepts derived from centralized urban models – will have a far more important impact on the growth of 'satellite towns', 'dormitory towns' and sub-urban neighbourhoods than on consolidated urban cores. Not to mention that many interventions within those cores will themselves be planned in direct relation to the large-scale strategy of dispersal. In Brussels, examples are the plan directly derived from the English *New Towns Act* – the Alpha Plan of 1947 –, the planning of the North-South junction (1952-1980), the upgrading of urban access roads in conjunction with the World Expo 1958, and the so-called 'Manhattan' project that starts in 1967. At that time, the capital is actually becoming a downtown business district[8] that operates on the scale of the elliptical configuration of the scattered metropolis (Bernard, 2010: 47; Cassiers

[6] The European Coal and Steel Community was set up in 1950. In this context, Brussels hosts the NATO headquarters in 1947 and that of the European Union in 1958.
[7] This Act sets a framework for the publishing of regional land-use plans. In view of the spread of urbanization at that time, its primary objective is to adjudicate local land conflicts and to limit urban sprawl. However, by following the zoning principles of The Athens Charter, it finally only confirms the existing scattered process of urbanization by empowering local authorities to act in their own right in the framework of large 'housing zones' established on the scale of the whole country. There is a reason for this counterproductive effect: considering that mobility networks make this country very accessible and that many urban areas are competing to attract housing and activities, local authorities are actually given every facility to promote urbanization where land costs are lower. Those lands are obviously the strategically located open spaces which extend between cities.
[8] Between 1945 and 1970, the office space in Brussels increases from four hundred thousand square meters to two million square meters.

& Denayer, 2009; Hubert, 2008; Lagrou, 2005; Demey, 1992).

1970-2008. Dispersal as a manifestation of a globalized system

From the 1970s onwards, the density of population living in the open space becomes large enough to curb the role of major cities on the country's productive system. The large democratisation of the car and the development of highway infrastructures[9] play then not only an important role in the ongoing spread of scattered residential settlements, they also make possible an effective decentralization of the public and tertiary sector activities. During the economic crisis that grips the Fordist model, a relocation of production is therefore taking place where land and labour costs are cheaper, but where regional networks have been set up. The most explicit example of this is the urbanization of the Kempen (Dejemeppe, 2012; Dubois, 2005; Kesteloot, 2003).

Whereas, hitherto, there was something of a balance between urban cores and the productive landscape, this new post-Fordist configuration is in many respects a rupture between the two historic components of the scattered metropolis: the densification of the open space is now being done to the detriment of cities themselves, a situation for which there is no strong reference framework in the field of planning theories (De Rynck, 2003: 46-47). In a way, it is almost as if the Hilberseimer's maxim had surpassed the wildest expectations intended by its author: '*As ruralization of the city would help to solve some of the city's problems, so also urbanization of the country may well be an answer to some of the country's problems* (Hilberseimer, 1955: 218)'.

This increase of importance of the 'anti-urban' way of life has indeed very concrete implications. Between 1985 and 2000, there is a growing imbalance between the average per capita income between people who live in cities and people who live at the urban fringe and beyond, with 'rurbans' coming out on top. The reference to Hilberseimer is thus quite deliberate: through the prism of

[9] Between 1970 and 2002, the Belgian road network grows by 57,5% and the highway network by 250%.

history, the spatial reconfiguration of the scattered metropolis has many times been tantamount to a reconfiguration of the social structure of the State itself. To describe such a post-war urban form is therefore not only a theoretical issue, it's a means of acting otherwise in the field of architecture and planning (Hilberseimer, 1944, 1949 & 1955).

Figure 5. *Impact of mobility networks.* The figure provides a classification of the cadastral parcels on the basis of their building year (source: AGDP 2009).

Describing uncertainties, from archetypes to a hermeneutic of dispersal

Given the widely dispersed population of the scattered metropolis, urban issues often seem to be paltry in comparison with other major European cities. However, the high density of small and medium-sized cities that make it up, combined with developments in soil sealing around and between each of them, are making environmental risk assessment policies increasingly complex, making social imbalances difficult to detect and objectify. In addition, when one considers the population of this metropolis on a large scale, it easily competes with more centralized configurations, which puts into question the concepts commonly used to define it.

From a narrow perspective, this urban form can certainly be regarded as a modern archetype fuelled by American and German examples of the anti-urban thinking. On this account, the Garden City movement and the regional planning theories defended by Raymond Unwin and Bruno Taut, or the decentralization principles implemented by Frank Lloyd Wright, Walter Christaller and Ludwig Hilberseimer, have played a key role in its inception. Nevertheless, one must not forget that the very foundations of these scattered settlements are the result of a long process of territorial interventions that had taken place both *within* and *outside* the traditional boundaries of cities. Far from being a legible and indelible figure, the scattered metropolis is therefore the very manifestation of the driving force resulting from the tension between archetypes and uncertainties.

Through the study of this particular case study, this article sets out to demonstrate that cities and open spaces are not self-contained or static systems, but the various facets of a multi-scale (physical and symbolic) structure. These figures are no longer singular, autonomous territories but administered ones, at the bidding of administrative circumscriptions that do not correspond to their empirical observation. In other words, the differences between them lie not so much in their morphologies than in the state model itself, i.e. in its capacity to exercise physical and symbolic violence at different scales while shaping forms *in situ*.

A critical review of the normative frameworks that rule planning theories could therefore be an essential prerequisite for understanding those contemporary territories, both on a practical and theoretical level. Such territories cannot be regarded as neutral descriptions or circumscribed spaces. As suggested by Bernardo Secchi, their borders and frameworks are tools that establish in themselves a spatial demarcation, and such a demarcation is also a socio-cultural situation that acts as a reference in the different areas of knowledge and in the different fields of action. It's thus necessary to consider their objectification and their production in the light of the actor network that underlies them. It's precisely due to this network that some territories are instituted and acquire a normative value while others become marginalized, irrelevant, in a very similar way as the modern distinction between urban and rural areas (Mantziaras, 2008: 12; Secchi, 2000).

The foregoing observations are therefore intended to shed light on the importance of the anthropological description process in the field of architecture, landscape architecture and planning. Such a description is actually not based on a set of pre-established frameworks and scales, or on a juxtaposition of figures and archetypes. It does not seek to set up inextricable links between the physical reality and a set of culturally charged conceptual tools, precisely because such links isolate groups and communities implicitly involved in these spatial tools. Rather than focusing on an archetypal model or figure, the *thick description* highlights the performative utterances inherent in the work of 'naturalization' and 'culturalization' of spatiality. It allows a hermeneutic of territories (Mantziaras, 2008; Corboz, 2001; Geertz, 1973).

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THE LANDSCAPE IN LE CORBUSIER PLANS FOR CHANDIGARH. NATURE AND GEOMETRY

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Abstract

Chandigarh is the most complete achievement of the Le Corbusier ideals, in architecture, urbanism and landscape. The Le Corbusier proposal starts over the Albert Mayer's plan of 1949 that "should be developed and detailed" and reach's its climax in the full conception in the capitol complex.

In this paper the analysis will start over the landscape point of view, searching for the fundamental premises of the conception, and will be focusing in the masterplan history and major modifications, of the Mayer's plan 1949, from the first revision of March 1951 to the final plan of Le Corbusier on May of 1952.

The masterplan revision establishes a new city's structural order, evolving from the premise of the naturalistic tradition of the English garden to the regular composition and sense of order from the French formal garden school.

This formal experiences and achievements combined with the natural elements, such as the rivers on the borders, the valley on the ground level and the Himalayan mountains in the horizon, corresponds to a pattern of ideas early established in the Jeanneret's youth and always present in his proposals.

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STALINIZATION OF ESTONIAN CITY SPACE: DEVELOPMENT, TYPOLOGY AND PERSPECTIVES

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Abstract

Background
Similarly to totalitarian Italy and Germany Soviet Stalinist town planning seems anachronistic but paradoxically embodying harmony and effectiveness. Although the contemporaneous tradition-based town planning was quite similar both in authoritarian and democratic countries, the new trend most strongly appeared in the totalitarian countries where strong ideologies were crystallised into grandiose and ensemble-like memory carriers in architecture and town planning. Even more, strictly organised, axial town planning, well-known since Roman times via renaissance and classicism upon the 20th century is rather functional in order to organise town´s gridline, which is supposed to make the state more effective, enterprising.

Results
As shows benchmarking of independent Estonian 1930s town planning with post-war Soviet period Estonian 1940s-1950s practice, Stalinist principles brought by Soviet occupation (since 1940) where rather similar to local ones disaccording mainly by quantity and methodology. Paradoxically regardless the war wreckages and terrorism of occupying Soviet regime Stalinist town planning principles generally matched with Estonian architects´ city visions. Some existing towns (for instance Tallinn, Pärnu, Narva) got new centres due to war wreckages, on the other hand for the ideological reasons. Meanwhile new industrial towns as examples of Stalinist utopia were built in East-Estonia during 1940s-1950s in order to exploit local mineral resources by the Soviet regime. Compared to small independent Estonia Soviet Union, encompassing 1/6th of the whole planet, was much bigger subsidizer. Though suffering irrational demolitions (Narva, Pärnu) after World War II, Estonian towns got axially arranged representative, sometimes enormous, but fairly perspective and functional plans (Sillamäe, Kohtla-Järve).

Implications
Is strictly organised public space as a part of town planning merely ideological? Is axial and a strict gridline of town layout totalitarian or just functional? Why did totalitarian systems use strictly organised, axial town planning? It seemed to embody an enterprising state tending to solve all social problems as effectively as possible. There seem to exist quite effective examples of town planning that are solved with rather enterprising methods in Estonia. On the other hand such imperial town plans are quite challenging both to the local authorities and the state nowadays.

Keywords: town planning, architecture, design, society

Introduction

Stalinist principles brought by Soviet occupation since 1940 and again since 1944 changed Estonian city space doctrine. Though the new principles seemed rather similar to local ones in a couple of times Estonian architects and city space practice faced quite unexpected instructions given by the occupying regime. After World War II Estonian architects were step by step forced to abandon former city space centres, their projects to restore wrecked centres of Narva and Pärnu and finally traditional materials used in walls and on façades. As local architectural organisations (The Union of Estonian Architects, etc.) were unified with the Soviet organisations Estonian city space was compelled to follow the Soviet doctrine by concept, forms and building materials. The most radical solution meant replacement of city and its inhabitants.

Does town planning represent a spirit of the time? Town planning and city space within it may be taken somehow as information communication technology. There one can recognise information recording functions (materialised ideology), communicational functions (massive, seemingly for one purpose, a produced space) and procession functions (computing and again communicating ideology via material). The most ideological town planning seems to belong to the totalitarian political systems.

Public architecture communicates with everyone, but especially via grandiose and ensemble-like buildings as memory or ideology carriers. Thus public architecture, e. g. city space has always been beloved by authoritarian and totalitarian systems in order to control citizens, their minds and memory.

On the one hand town planning represents urbanism via its development, typology and perspectives, but on the other hand it could be quite philosophical, even reflecting effectiveness of a society. However, city space as the quintessence of the town planning, concerning especially the representative city centre, carries on the idea of artefact (human product), but it represents both contemporaneous ideology and functional needs (or predicted needs).

What is totalitarian town planning? Totalitarian town planning in Europe in general between the two World Wars and in Italy, Germany and the Soviet Union during World War II is mostly taken as something negative but still admirable. In these countries the middle class had been winners after the regimes based on monarchies were reversed by World War I. This caused overwhelming joy but also some anxiety – due to the economic decline after World War I threatening society. People risked losing everything that they had achieved during the previous decades even centuries. Renaissance park designs, baroque square arrangements, classicist axes for cities and monumental form models seemed to embody peace, harmony and effectiveness.

The meaning of town planning

Although the new tradition-based town planning was quite similar everywhere - e.g. in the USA, the United Kingdom and France - , the new trend most strongly appeared in the state ideological countries where the material support was also the greatest such as - in Italy, Germany and the Soviet Union. In these countries, strong ideologies were crystallised into *grandiose* and ensemble-like memory carriers in architecture and town-planning. Nevertheless the previously mentioned town planning was somehow common in authoritarian and even quite democratic countries. Even more, strictly organised, axial town planning, well known since Roman times via renaissance and classicism in the 20th century is rather functional in order to organise a town gridline, which was supposed to make state more effective, enterprising. See for instance Lorenzo Bernini`s colonnade and Via Concillazione (Vatican, 17th cent - early 1930s) or The National Mall, James McMillan plan (Washington D.C., 1902).

Similarly to totalitarian Italy and Germany Soviet Stalinist town planning seems anachronistic but paradoxically embodies harmony and effectiveness, functionality. Both Nazi German and Soviet Stalinist architecture and town planning are rather similar with the differences existing mostly in details and sources (Kruft, 1994, p. 423).

An even stronger example can be found in Mussolini´s Italy where a new stately ideological term *novecento* was derived from renaissance cultural terms *quattrocento* and *cinquecento* (Frampton 1989, p. 217). In Italy one may recognize building and planning patterns overtaken from the Roman Empire, renaissance, and classicism but in more flattered, distilled way, yet still containing the essence of the source and reminding contemporaneous modernism as one can see in Giuseppe Terragni´s *Casa del Fascio* in Como (1932-1936) (Kostof, 1995, p. 718).

For example in Nazi Germany architect Albert Speer designed the Nuremburg Zeppelin field to be as a play set for ideological films and to exist for a thousand years. In order to reflect power of the ideology the complex was supposed to be immaterially bigger in darkness while its lights were directed into the sky to create “cathedral of light”. (Curtis, 1996, p. 355) The recorded, crystallised information (materialised ideology) was communicated out of produced space, while computed and again communicated into ideology. The closed circle is reminiscence of Plato´s static state model.

On June 15th, 1931 the Communist Party of the Soviet Union´s Central Committee’s Plenum decided that town planning including both reconstruction and construction would be realised under the guidance of the state´s central plan for the national economy. (Bunin, 1945, pp. 290, 291)

In January 1932 the Soviet People´s Commissar of Education Anatoly Lunacharskiy stated that a task of architecture is to integrate functionality and utility in a harmonized way into an ideological idea (Kossenkova, 2009, pp. 19-20). In February 1932 the Soviet Communist Party found a new ideological method – socialist realism. Reflecting merely a bit Renee´ Descartes´s rationalist philosophy of method, the socialist realism was intended to collect the best both from history and contemporary time. The new method, one of the important cornerstones of Soviet ideology, was supposed to lead society into an ideal future. Socialist realism was not intended to give up the cultural heritage,

but to recycle, to synthesize it on the behalf of a better tomorrow. Meanwhile socialist realism handled the cultural, architectural, heritage as a storeroom whence one may whenever take whatever one wants. This method was supposed to „embody an absolute apocalyptical future where the difference between past and future abolishes significance." (Groys, 1994a, pp. 641-644, Groys, 1994b, p. 859)

An indication of the state´s increasing enterprising role was the decision of the Palace of the Soviets Construction Council made under the guidance of Chairman of the Council of People´s Commissars Vyacheslav Molotov on February 28th, 1932: according to the Palace of Soviets competition prescriptions compel all architects to follow requirements of simplicity, unity and elegance in architecture and to follow the best example of classicist architecture in one´s creation (Tsapenko, 1952, p. 73). The palace was started to construct instead of the Moscow Saviour Church exploded in December 1931.

Meanwhile the state architect of Germany *Erster Baumeister* Paul Ludwig Troost redesigned Munich central square *Köningsplatz* in early 1930s according to Leo von Klenze´s *propylea* and Karl Friedrich Schinkel´s classicist principles. Newly designed *place royale* seemed to fit to the Third *Reich* so that Adolf Hitler characterized the composition as an incarnation of *Germanische Tektonik* „expressing German nation´s mighty, uncompromising building heritage" that had „blood relationship with Hellenes." (Troost, 1938, pp. 15, 16)

Parallel with the redesigning of Moscow´s centre structure the first Stately Union Congress of Soviet Architects held within the period of June 16th – June 26th, 1937, stated in the resolution that the Principle method of Soviet architecture was socialist realism. According to the new method soviet architect was supposed to be able to produce, in the utmost rapid and industrialized way, architecture that was highly qualified both aesthetically and economically. (Tsapenko, 1952, pp. 74, 75)

As stated by the famous Soviet architect Ivan Zholtovskiy architecture in a city

space was supposed to be ensemble-like, where every house had to be ruled by ensemble. That meant a certain hierarchy where every part had to obey the principle of unity. (Zholtovsky, 1940)

That was the way to create a method for creating artistic image in order to educate and re-educate the masses. That was a synthesis of the arts – the bringing together of different forms of art under one architectural „roof“. (Kodres, 2008, p. 142)

Both in old Europe and Soviet Union ordinary people were used to monuments related to fallen monarchies - Renaissance park designs, baroque square arrangements, classicist axes for cities and monumental form models which seemed to embody peace, harmony and well-being. These people, by the way, failed to understand modern construction-centred, bare and asymmetric modernist architecture, which inspired horror as to the cultural progress of the mankind, even when this kind of architecture was rapidly "softened", becoming functionalism.

Though tradition based architecture, town planning at the beginning was not as industrialised as modernism. It was more understandable, reminder of the „good old times“, and gave an opportunity to pull people in. This interactivity, the method of recycling and synthetizing on the behalf of a better tomorrow gave the Soviet ideology a possibility to embody itself as exampled in town planning which perhaps had the biggest impact on the citizens. (Åman, 1992, pp. 53-55) The Soviet ideology used town planning as a recording technology that was supposed to communicate the ideology in order to be processed, computed and spread all over the Earth.

Strict gridline – anachronistic crystallisation or perspective functional need?

Is strictly organised public space as part of town planning merely ideological? Is axial and strict gridline of town totalitarian or just functional? Why did

totalitarian systems use strictly organised, axial town planning? Strictly organised, axial town planning seemed to embody peace, harmony and effectiveness (for instance James McMillan plan in Washington D.C., 1902).

At the same time it seemed to embody enterprising state tending to solve all social problems as effectively as possible. For instance in the Soviet Union the main principle of soviet town planning was the Stalinist care for people embodied in Moscow “that by its 800th anniversary got new architectural appearance: axial town planning, well equipped living quarters, parks, bridges and grandiose administrative buildings completed in accordance with the city reconstruction general plan.“ (Sovetskaya architektura …, 1950, pp.8, 9). According to Aristotle the less democratic the state is the more effective, e.g. enterprising it seems to be.

Could town planning be a projection of state? Plato´s pyramid-shaped state model was static depicting eternally crystallised ideology that in its turn was intended to be circulated within the state. Could town planning be an indicator of social effectiveness? For example according to Aristotle´s dynamic state model the less democratic the state is the more effective, e.g. enterprising it seems to be.

While in Western countries, the replacement of modernism by a new classicist movement meant that democracy had been replaced by totalitarian systems; in the Soviet Union all architectural development took place against the background of a totalitarian system. In town planning totalitarian systems very much favoured stately urban ensembles that enabled the leadership to materialise state ideology, to orient the crowds as much as possible towards squares that became like theatre stages, and to manipulate the crowds and convince them that the state really was powerful, as well as to let them believe that all this power belonged to the people. Similarly to global tendencies, architecture in the independent Republic of Estonia in the 1930s started to focus on stately urban ensembles as an architectural element enabling the young country to develop its own stately façade. This tendency increased as even

Estonia became more authoritarian.

Figure 1. Pärnu Road apartment buildings nearby Freedom Square in Tallinn from late 1930s. (The author).

Republic of Estonia was interested in state´s representative façade to be incarnated via town planning, city space. In order to tackle the dream central city spaces of Tallinn, Tartu, Pärnu and other towns were intended to be redesigned. According to the president Konstantin Päts´s decree of May 27th, 1936 all façades in Tallinn Freedom Square district could be designed or redesigned with permission of the president only, all buildings nearby the Freedom Square on the behalf of its representative appearance could be demolished by the government's order. (Vabadussõja üleriikliku mälestusmonumendi püstitamise seadus, 1936, p. 1028)

Are the stately urban ensembles within town planning merely crystallisations of ceased ideology? As shows benchmarking of independent Estonian 1930es town planning with Soviet period Estonian 1940s-1950s practice, Stalinist principles brought by Soviet occupation where rather similar to local ones disaccording mainly by quantity and methodology. Paradoxically regardless the war wreckages

and terrorism of occupying Soviet regime Stalinist town planning principles generally matched with Estonian architects´ city visions.

It is used to characterize Estonian Soviet period town planning ideas as megalomaniac. For example during the Tallinn Freedom Square city space architectural content in 1937 one of the proposals (Harald Arman, Salme Vahter-Liiver) suggested to double the area of the square by demolishing St John´s church and a school building nearby. Though the contenders were suggested to remove the church (Bölau 1937, pp. 86–87), the jury regardless unlacing the H. Arman´s and S. Vahter-Liiver´s proposal as too enormous still decided to purchase the project. (ERA 2218.1.223, 34; Vabadusväljak arhitektide kujutuses, 1937)

It is paradoxical that the Stalinist stately urban ensembles in Estonia provided an opportunity for architects to carry out some of their architectural ideas from the period of independence that had remained on paper. Even more compared to small independent Estonia Soviet Union, encompassing 1/6th of the whole planet, was much bigger subsidizer. In 1940s private property had been abolished, resulting in complete state ownership of the land. In addition, the war had left huge demolished areas that turned out to be practical playgrounds for architects in Tallinn, Pärnu, Narva and elsewhere in Estonia.

During World War II according to plenary resolution of the Soviet Architect´s Union of the USSR the soviet architects were supposed to be ready to the gigantic restoration works after the war (Plenum …, 1943). The following instructions given by Council of People´s Commissars of the USSR and the Soviet Communist Party compelled architects to design and restore wrecked towns more *grandiose* and according to the stately ideology (Iz istorii …,1978, pp. 94–102, 109). The head of the Department of Architecture of the Estonian SSR H. Arman residing in the USSR started to organise restoration of Estonian towns already in mid-1944 (Goritsch, 1946).

The head of the Stately Committee of Architecture of the USSR Arkadi Mordvinov

formulated principles of the Soviet post-war town planning that were compulsory for all architects (Kossenkova, 2009, p. 42). On the one hand Estonian mid 1940s town planning was quite similar to the pre-war independence period disregarding the rest of the Soviet Union architecture. For example architect Ernst Ederberg tried to restore the old baroque Narva and architect Endel Arman made a restoration project for Pärnu. (ERA R-1992.2.33, 88–92; Ederberg, 1948; Volkov, 1991: 192; Parek, 1971, p. 72) Both of the towns were in quite satisfied condition after World War II.

Figure 2. Estonia Boulevard administrative buildings in Tallinn from the turn of 1940s and 1950s. City space by H. Arman, the front building by Enn Kaar. (The author).

On the other hand some architects (Voldemar Meigas, Otto Keppe) proposed to restore Tallinn centre similarly to Stalinist practice in Leningrad (St. Petersburg). Architect H. Arman balanced between two tendencies. Meanwhile East Estonian industrial towns Sillamäe, Kohtla-Järve, Jõhvi and since late 1940s Narva were designed under the guidance of Leningrad construction departments.

Nevertheless in 1940s local Estonian architects used to design administrative

and apartment buildings in 1930s manner: granite wall coating, modest, scarce ornament, only roofs were a bit more pitched and some soviet symbols were added.

For example the Tallinn Cultural Centre in front of Estonia theatre and was designed under the guidance of H. Arman in the quite same way.

H. Arman gave local architects rather certain instructions for town planning in Estonian SSR. The instructions followed the board resolution of the Soviet Architect´s Union of the USSR made on October 24th, 1946 and the plenary resolution of the Soviet Architect´s Union of the USSR made on August 2nd 1947. (Meigas, 1948, pp. 5 – 7; Arman, 1946, pp.5, 7; Tvorcheskye …, 1948, pp.49–61; Arman 1948, pp.10, 11).

So-called liberal Stalinism ended in 1949 while approximately 20 000 inhabitants of Estonia were deported to Siberia within one night. Political pressure radiating from Moscow compelled local Estonian architects to design city space more similarly to the capital of USSR, Leningrad (St. Petersburg), Stalingrad (Volgograd).

Figure 3. Apartment buildings in the corner of Kauka and Lembitu streets in Tallinn from the turn of 1940s and 1950s. (The author).

Perhaps one of the most Estonian enterprising town planning treatments aside Narva took place in Pärnu during the Stalin era. In 1947 and 1948 E. Arman´s restoration project for Pärnu was accepted in the Department of Architecture of the Estonian SSR (ERA R-1992.2.1, 45-48; ERA R-1992.2.33, 74-84). At the same time the project passed by the expertise made by the consultant for the Estonian SSR of Soviet Academy of Architecture Igor Fomin to change the project (ERA R-1992.2.33, 139-142). By the end of 1949 and the beginning of 1950 the Department of Architecture of the Estonian SSR merely accepted the consultant´s proposals (ERA R-1992.2.33, 104-126). According to the board resolution of the Soviet Architect´s Union of the USSR made on June 5th, 1952 certain instructions in the field of ensemble-like town planning such as for Moscow, Leningrad, Stalingrad (Volgograd), Kiev, Minsk – those were model towns, e.g. set as an example to other towns all over the Soviet Union (Hronika …, 1952, pp. 31–33).

In summer 1952 H. Arman itself proposed (with Grigory Schumovskiy and Mart Port) a project for Pärnu. The partly realised town planning project followed I. Fomin´s suggestions. According to the project many quarters of the burnt but still preserved old town were demolished, the St Nicholas Church (14th century) in the same condition was exploded. The central square from 1930s was abandoned, the town got for its measures enormous new axial centre instead of demolished quarters of the old town. Meanwhile importance of Pärnu increased caused by replacing traditional counties with Soviet oblasts by Moscow. (ERA R-1992.2.70, 47; ERA R-1992.2.33, 42–44; Parek, 1971, pp. 42,43; Schumovsky, 1953; Härmson, 1983, pp. 35–43)

Figure 4. Pärnu oblast centre by H. Arman from 1952-1955 nowadays. (The author).

Since Pärnu was regarded as a future oblast capital it got rather grandiose centre plan. While the soviet architect´s handbook (1952) suggested to design a 1 hectare central square for the town with the population of 50 000, Pärnu with the population of 20 000 got a 2.5 hectares central square. (Kratkij …, 1952: 20, 21)

Rather similar anomalies between the amount of population and the area of town centre could be noticed in Sillamäe, Kohtla-Järve designed under the guidance of Lengorstroyproyekt residing in Leningrad (St. Petersburg).

Conclusions

The Stalinist architectural policy, town planning as doctrine and paradigm were rather enterprising framed by resolutions and instructions. Town planning gave to the totalitarian system an opportunity to „correct" the memory: to remove „the wrong" and to replace it with „the right". In order to control the memory something reincarnating traditions is supposed to be replaced with another

embodying new ideology. City space as the quintessence of the town planning, concerning especially the representative city centre and representing architectural system gives the state perhaps one of the best opportunities to "correct" the memory. At the same time the state seemingly should act in utmost resolutely and enterprising way.

Paradoxically - similarly to the Stalinist architectural doctrine the mentioned one was after J. Stalin´s death (1953) ended with the November 1955 resolution of the Communist Party of Soviet Union Central Committee concerning ending of exaggerations in architecture (Ob ustranenii …, 1955, pp. 8, 11, 13, 15).

On the one hand after World War II Estonian towns suffered irrational demolitions (Narva, Pärnu), on the other hand got axially arranged representative, sometimes enormous, but fairly perspective plans (Tallinn, Pärnu, Sillamäe, Kohtla-Järve). Even more for example East Estonian industrial towns (Sillamäe, Kohtla-Järve, Jõhvi, Narva) got axially arranged representative, sometimes enormous, but fairly perspective plans.

Figure 5. Stalinist centre of Sillamäe, early 1950s (Lengorstroyproyekt) (The author).

Those town plans, stately urban *ensembles* have got even nowadays procession functions. Both the ideology of the ceased state and local visions of ideal cities are recorded in completed town plans which have become memory carriers. On the other hand those memory carriers, artefacts radiate, communicate recorded and processed information, still waiting to be used in utmost amount.

What to do with those tradition-based, sometimes enormous, but even nowadays functional town plans? There seem to exist quite effective examples of town planning that are solved with rather enterprising methods in the world and in Estonia. On the other hand such town plans are a challenge to be handled by the local authorities, even by the states nowadays. Those axially arranged representative, sometimes enormous town plans are even nowadays fairly perspective by their functionality.

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THE EXPERIENCE OF THE COMMUNIST SETTLEMENT
The *Danwei dayuan* and the evolution of urban fabric of Chinese cities

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Abstract

During the primary period of China's communist experience, Danwei dayuan (work-unit compound) was invented as a settlement archetype and became an important unit to form the city.

From 1949, the foundation of P.R.C., the Communist Party of China which lead by Mao Zedong started the experience of construction a country of communism. Danwei dayuan appeared as a new archetype of urban structural unit under the combined influence of the planned economy system, the Soviet experience and communistic policies. It was an evolution of the Chinese traditional courtyard architecture system and at the same time referred to the related concepts which were prevalent in China at that time, such as the idea of neighbourhood unit. Danwei dayuan was enclosed by wall like a giant compound which followed the idea of traditional courtyard building architecture system and worked as a micro city. It gathered the people nationwide and integrated all the necessary facilities of their daily life. The city then renewed by assembled this kind of self-reliant and mix-used Danwei dayuan, which help the cities to display an agreeable order and pattern while also raised some problems.

Nowadays, the age of Danwei dayuan is almost ended. They gradually vanish form the city. The Chinese cities are evolving continuously, while urban framework formed by Danwei dayuan is context of the new development, and the advantages of the archetype of Danwei dayuan can still provide many useful ideas for the enhancement of contemporary cities.

Keywords: *Danwei dayuan* (work-unit compound); Urban unit; Urban framework; City evolution; Urban lifestyle

After the foundation of the People's Republic of China, everything was started from scratch. In the hundreds years, because of the low level of productivity and technology, China had a disadvantaged national strength and got a frustrations experience. Therefore, Mao Zedong's communist party determined to develop

vigorously the industrial production as the primary mission of the country. With the encouragement of the slogans “transform the consuming city into a manufacturing city” (变消费城市为生产城. *bian xiaofei chengshi wei shengchan chengshi*) and “work first, then life” (先生产,后生活. *xian shengchan, hou shenghuo*), China began the construction of the communist country.

Since 1953, the five-year periodical national economic development plan started to carry out to help the new national leaders, with less management experience, to administer the country. More then ten thousands of foreign experts, mainly from the Soviet Union, came to China to assist and train the Chinese engineers. With their help, China had a good start on the industrialization and established the planned economy system. These regenerated measures and systems needed an appropriate context to hold them; therefore the urban fabric had to be adjusted according to the changes with the experiences from the different aspects.

Danwei **(Unit)**

Danwei (Unit) represents the basic element to constitute a compound issue. In the planned economy system, as the meaning of the word, *Danwei* was the basic cell and operational unit of the structure of national politics, economy and society.

Mao Zedong had a famous sentence: "Political power grows out of the barrel of a gun". After the foundation the new regime, the Communist party continued the regimented management to organize the entire society and take up the economic construction. According to the planned economy system founding with the help of the Soviet experts, the social sectors had been divided into various and hierarchical *Danwei* (Unit), like “autonomous” bodies - responsible for itself, management by itself. The city governance functions were totally undertaken by *Danwei*. This system was fully adapted to the situation of resources’ shortage and allocation in the planned economic mechanism, and built up the relationship

between the individual and nation from different aspects like politics, economy and daily life.

Almost every urban inhabitant belonged to a *Danwei*. On the point of function, *Danwei* limited all the people's necessary activities. It was not only the working place, but also a universal organization which could regulate and control the society, distribute the resources, provide the social insurance and so on. It was a micro society. On the point of form, the physical organization of *Danwei* was always enclosed by walls, so the whole *Danwei* was usually called as *Danwei dayuan* (literally means the big courtyard of *Danwei*; it could be also formally translated as the work-unit compound). As a special courtyard community, *Danwei dayuan* looked like various separate villages in the city, while they assumed the urban responsibility that made each of them as a micro city.

The reference concepts of *Danwei dayuan*

Although *Danwei dayuan* seemed a new invented archetype to form the city in a special period of China, it shaped by the influence of some ideas which were already existed in china. The indigenous Chinese courtyard building architecture provided the reference of the spatial composition to the new invention. At the same time, the idea of neighbourhood unit which had been imported into China at the beginning of the 20th century provided a theoretical guidance on the organization of its functional spaces.

- The traditional courtyard and the ancient Chinese city

The courtyard was a typical feature of Chinese traditional architecture and city, the courtyard building architecture worked as the basic "unit" to compose the ancient cities. The courtyard building architecture generated basing on the traditional Chinese agricultural production. The organization and order of the agricultural production caused the basic rules of society and gradually became the principle to construct the physical space order.

Jing Tian Zhi (Square-fields system) was an ancient farming system, which had a similar diagram with the Nine Squares Grid. This kind of division of farm lands was deriving from the daily agricultural production and life which surrounded the well as the water supply. The central grid was the public area while the surroundings were more private reflecting the link between individual and collective. The form of single courtyard building was shaped to reflect the diagram and each of it was occupied by one family, because the family was the basic unit when implementing the agricultural production.

Ritual institution, as the theories of Confucian-based philosophy, was a most important guide when people organizing the society in China, and aroused the ancient Chinese urban planning principles 3000 years before, in *Zhou li - Kao Gong Ji* (Rites of Zhou - Book of Diverse Crafts). The social organization showed a hierarchical order system from running the home to running the country: the single courtyard building containing the single family was the basic unit to constitute the district, then the city, and then the whole country. This structural system made the urban fabric looked like a huge continuous single architecture with a series of courtyard of flexible scales-from micro to macro or vise versa. For example, Beijing is a city which was built by using the concept strictly. Its urban framework could be easily recognized on reflecting of the concept diagram. (**Figure 1.**)

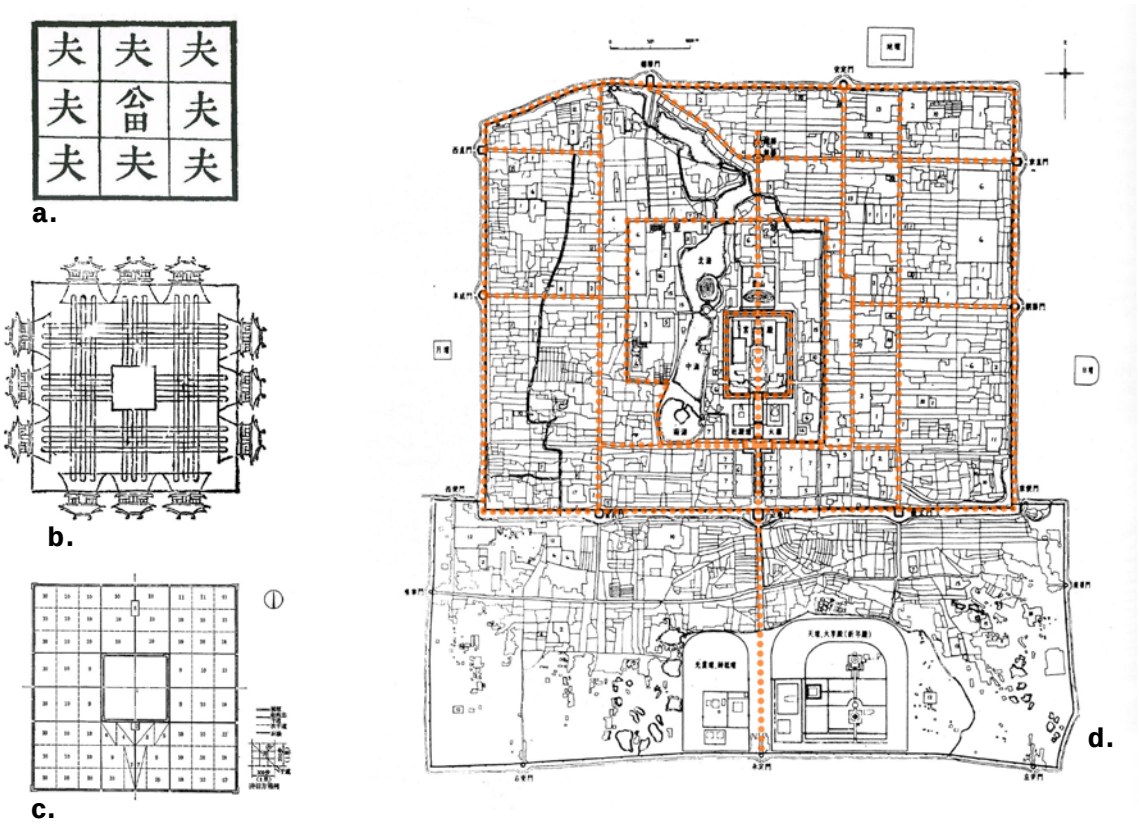


Figure 1. Diagram of *Jing tian zhi* (a.), Capital city in *Book of Diverse Craft* (b.); Basic structure of the Capital city (c.), Beijing ancient city (d.)(Sources: **a**, **d**. Lindqvist, C. (1991). *China, empire of living symbols*. Reading, Mass.: Addison-Wesley.; **b**. Dong, J.(1989). *Zhongguo chengshi jianshe shi - di 2 ban(History of Chinese city development - 2nd edition)*. Beijing: China Architecture & Building Press.; **c**. He, Y. (1985). *Kaogongji yingguo zhidu yanjiu (Research of planning system of capital city in Book of Diverse Crafts)*. Beijing: China Architecture & Building Press.)

- The idea of neighbourhood unit

The idea of neighbourhood unit was also an important concept to affect the Chinese urban fabric. It had been introduced into China before the foundation of PRC. Chinese cities accepted the advanced - mainly the industrialized - production methods since the second half of 19th century, especially in the first five-year (1953-57) plans of P.R.C., the government wanted to transform the cities as the base of industrial production. A large number of agricultural populations abandoned farming and migrated to cities. The city expanded rapidly, the residence construction was flourishing. Some planning of the new districts adopted the idea of neighbourhood unit which was from the West to

solve the problems of organization of the living facilities and the regional management.

Caoyang new estate for workers in Shanghai was a proper case for the topic. The planning of this estate practiced the concept of the neighbourhood unit proposed by American planner Clarence Perry in the 1920s. (Dingzeng Wang, 1956) Built from 1951 to 1954, *Caoyang* new estate worked like an enlarged neighbourhood unit. Four elementary schools determined the scale of neighbourhood and served for subordinate neighbourhood units. The neighbourhood facilities - such as shops, post office, bank, and cultural centers, theaters - were enclosed at the central position, while the small vegetable market and shops were put on the edge of the estate. The life inside the estate was convenient: children could go to school in only a few minutes by foot; their parents could purchase daily necessities from the shops and markets after work on their way home; after super or on the weekend, the neighbours could get together in the central public facilities for the free time. (**Figure 2.**)

Figure 2. *Caoyang* New Estate, planning by Wang Dingzeng, 1951 (Source: **a**. Redrawing by author, base drawing source: Wang, D. (1956). Shanghai Caoyang xincun zhuhaiqu de guihua sheji (the planning of Shanghai Caoyang new estate). *Jianzhu xuebao (Architectural Journal)*, 02.; **b**. AA,VV.(1998). *Shanghaishi juzhuqu jianshe tuji 1951-1996 (Atlas of Shanghai residential district 1951-1996)*. Shanghai: Shanghai Scientific and Technological Literature Publishing House Co.,Ltd.)

The layout of *Danwei Dayuan* (Work-unit compound)

By reviewing the reference concepts of *Danwei dayuan*, its layout and the way of management are easier to be understood. It was a new invention, but it was also an objective result of the social development to adapt the certain environment.

- New appearance of Chinese traditional courtyard

The form of *Danwei dayuan* (work-unit compound) considered about the Chinese traditional courtyard. In the new age, *Danwei* took the meaning of “family”. People from one *Danwei* worked and lived together year after year. They shared the same environment, culture and also the activities basing on their works. The

common emotion they got linked them together, gave them the sense of belonging and made the *Danwei dayuan* as a big family which was the basic unit to form the society at that time. Inside each *Danwei dayuan*, there was also a hierarchical sequence as the one in the traditional family, but it was not according to the kinship, it was political and economic relations basing on the people's work. The spaces of the traditional courtyard and city were organized by the sequence originating from one family and a single courtyard building while the modern Chinese city was basing on the *Danwei dayuan*.

By sharing the common points, *Danwei dayuan* composed its layout by using the structure of the courtyard. Basically, each *Danwei* had an enclosed wall around the boundary to isolate itself as an independent small society. Inside the enclosure some secondary courtyard-like spaces were adopted to organize all the necessary facilities to manage the work and the people's life.

- Promotion of the idea of neighbourhood unit

Although the *Danwei dayuan* could be regarded as a family with some features of the traditional courtyard, its inner functional spaces are much more abundant by combining with the neighbourhood unit. In a certain sense, it works like a micro-city.

In generally, there were 4 types of facilities within one *Danwei dayuan*. First, the facilities of working: they were the basic ingredients of the big enclosure to show the duty of *Danwei* in the social hierarchy. Second, the staff residence and their related facilities of water, electricity, gas and so on. Third, the facilities serving the daily life: such as the canteen, the shops, bathroom and so on. Fourth, education, culture, health and other welfare facilities: like kindergarten, school, cinema, stadium, hospital and so on. （Shaobin Ren，2002）The facilities inside a *Danwei* were usually very completed. Once there was a joke: excepting the crematorium, the big courtyard could satisfy one's whole life.

Danwei dayuan promoted the idea of neighbourhood unit. It was not only a simply community, but an organization combining the working and living

facilities. Its construction, management and application were all according to the proper *Danwei*. All the internal facilities can be reached easily by slow traffic as walking and bicycle in a short time. It greatly reduced the daily routine traffic and provided a convenient life for the inhabitants. The workers of the *Danwei* could rent one apartment at a very low price in the living zone which occupied only 2.8% - 4.5% of their wages. It indicated that the rent is only a symbolic, the apartment was a kind of welfare considering about the context of communism.

- The Framework of *Danwei dayuan*

In the early days of P.R.C., China needed to establish the primary appearance of the communist country in a very short time, and in the meanwhile found the way to manage the country and constructed the industrial production environment. At that historical point, the internal facilities of *Danwei dayuan* were unified all over the country and the patterns of all the compounds were also homogeneous. There were mainly two modes of *Danwei dayuan*: one was suitable for the administrative institution such as the government agency, the university; another one was suitable for the enterprise unit such as the factory. (**Figure 3.**)

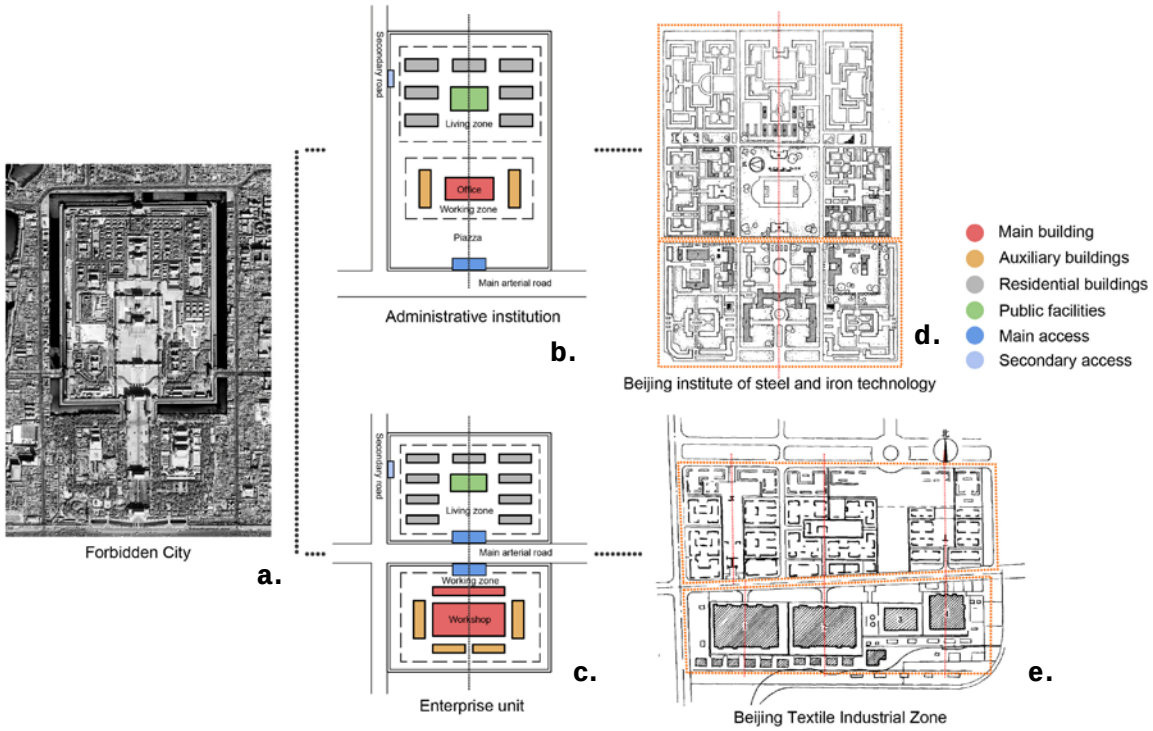


Figure 3. The diagrams *of Danwei dayan* (Source: **a**. © Google Earth.; **b**, **c**. Redrawing by author, base drawing source: Zhang, Y., Chai, Y., Zhou, Q. (2009). Zhongguo chengshi Danwei dayuan de kongjianxing jiqi bianhua (The spatiality and spatial changes of Danwei compound in Chinese cities: case study of Beijing No2 textile factory). *Guoji chengshi guihua (Urban planning international)*. 24(5). **d**. Wu, Q., Zhou, Q. (1956). Beijing gangtie gongye xueyuan sheji jieshao (Introduction of Beijing Planning of Beijing Industrial Institute of Steel and Iron), *Jianzhu xuebao (Architectural Journal)*, 01. **e**. AA.VV. (1994). Beijing architecture design collection. Beijing: Compilation committee of Beijing architecture design collection.)

In the both the two modes, one *Danwei dayuan* could be roughly subdivided into two parts which maybe enclosed by two secondary enclosures: one was for working, the other one was for living. They arranged according to the principle of the traditional Chinese courtyard: the working was the forepart (south); the living part was in behind (north). In the administration institution, the working and living were usually in the same big enclosure, while they were independent in the factories. Inside the *dayuan* (compound), the master planning of the courtyards and the arrangement of buildings were followed the Chinese principle of organizing the urban spatial sequences: using the hierarchical spaces, the axis and symmetry to show the sense of order.

The layout of working area was usually symmetric as the traditional courtyard: the main office building or main factory workshop and main yard space were on the axis, the auxiliary buildings were symmetrically by the two sides or on the surrounding. The living area usually continued the axis of the working area, and arranged the master plan according to the idea of neighbourhood unit: the public facilities (including the kindergarten, public garden, etc.) in the centre and the residential buildings were surrounded.

The architectural layout usually adopted the style of perimeter block which was a Western style and introduced by the Soviet experts, and combined with the idea of Chinese traditional courtyard. In some *Danwei dayuan*, the standardized, low-cost, and prefabricated slab apartments were also adopted for the staff residence.

Danwei dayuan generally adopted the closed-off management. There were only three or four accesses on the external enclosure and forbidden the outside vehicle passing through the compound. The internal motor road had the main circulation near the boundary to leave the rest central part could use mainly the slow traffic to guarantee the quiet and safe environment.

The city with *Danwei dayuan*

With *Danwei dayuan*, the city appeared a new urban pattern with the identity of strictly management and control, which was a feature of Chinese ancient cities and could be advantaged in the initial period of the young communist country. The framework with various enclosures recalled the regimented order of ancient Chinese city *Chang'an*. The boundary walls made each compound isolated in the city, which seems the inhabitat type of *Li-fang* walled district system of *Chang'an* in Tang dynasty (600s-900s).

But different from the traditional courtyard, *Danwei dayuan* contained the complex spaces and had a much bigger dimension. As what are showing in the cases, the length of its short side was around 500m, and the long side may be more then 1000m. The big urban block forming by *Danwei dayuan* and the

application of the vehicle induced the framework of the new urban master plan had a low roads density: distance between arterial roads was around 700-1200 m, between secondary trunk roads was around 300-500 m. The roads were wide with a high projected speed. The fabric of the advanced urban area appeared a system with the rectangle grid inside which were the compounds with various scales. Therefore, the urban layout became a pattern with a series of homogenous spaces lacking the unique characteristics.

For example, the expand district of universities of Beijing was built outside the historical centre in1950s. The area was empty before and had plenty of land resources. Each university was one *Danwei dayuan* (administrative institution) and occupied a big urban block. They together made up a district with big urban grid which displayed clearly urban framework with the compounds. (**Figure 4.**)

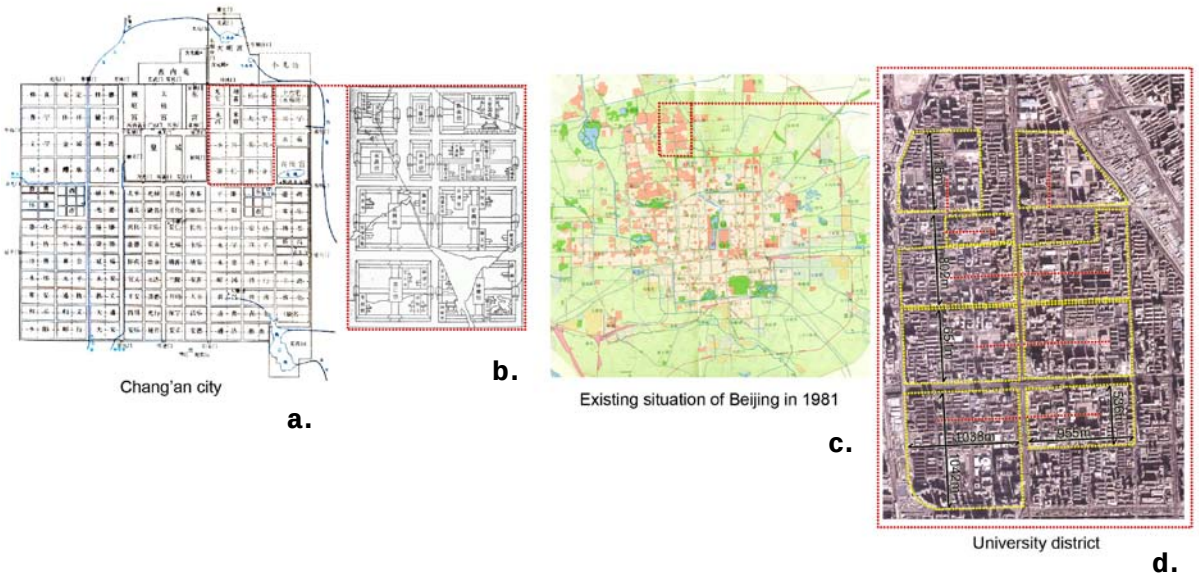


Figure 4. *Chang'an* city VS University district of Beijing (Source: **a, b**. Dong, J. (1989). *Zhongguo chengshi jianshe shi - di 2 ban (History of Chinese city development - 2nd edition)*. Beijing: China Architecture & Building Press; **c**. Beijing Institute of Surveying and Mapping Ed. (1994). Atlas of Beijing. Beijing: Surveying and Mapping Press; **d**. drawing by author bass on source: © Google earth.)

Danwei dayuan changed the way of social life. Comparing with the former Chinese city, the compound changed the relationship between the inhabitants and the city. It reduced the public life on the external streets, but moved them

inward the enclosure. The utilization of its internal spaces was much higher then the external road, the land intensity of the city has been redistributed. The isolated micro cities turned into the main fields of the inhabitants' daily life, while the city retreated to the secondary role. However, although the life was convenient in the compound, because of the isolation, the inhabitants from different compounds had very few opportunities to communication which limited people's social range.

Besides, *Danwei dayuan* also created some other urban problems. There were completed service facilities inside each compound, but the strict control of the closed-off management caused a low utilization of them, which was a kind of potential profligacy of the urban land resource. Second, the pedestrian spaces in human scale were only existed inside the compound; the external roads with low density were wide and mainly occupied by the motor vehicle and caused the serious traffic congestion problems in the following urban development. They were disadvantageous for developing the urban pedestrian traffic, and raising the urban vigour.

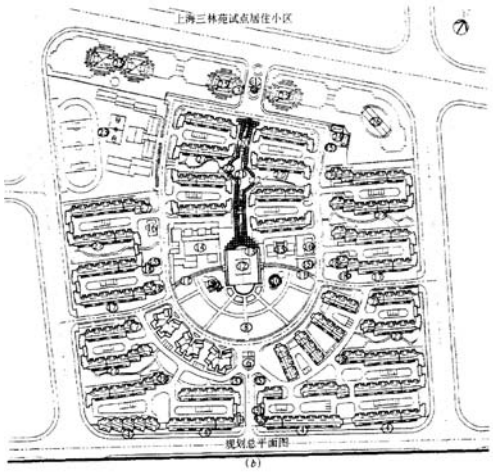
The later development of *Danwei dayuan*

After 1980, China changed economic mode from the planned economy system into market economy system. The reform and opening policy reduced the political control and restriction. In the following urban development, the city's industrial duty was gradually weakened while its feature of the consumption was increasingly strong. Because of the era of diversity, the system of *Danwei* gradually disintegrated, and *Danwei dayuan* was not any more the important basic unit for building up the urban framework. Nowadays, the developments of them display mainly three situations.

First, although large numbers of industrial compounds are dismissed, some administrative institution (the government agency and universities) are still existed. They keep the original pattern, but renew the facilities and the buildings according to the advanced technology and conception.

Second, the closed *Xiaoqu* (residential quarter) which is also originated from the idea of neighbourhood unit become the main unit to form the city. They are also enclosed as a courtyard, but with only the living facilities inside. At the same time, some dismissed industrial compound also transform into the *Xiaoqu*. However, according to the market economy system, *Xiaoqu* is much more commercial then the living area inside a *Danwei dayuan*. The inhabitants are almost strangers working in different fields, they seldom share the common topics and the sense of community is weak. In addition, because the inhabitants may don't work in the nearby places, large amount of traffics are produced everyday in the rush hour.

Third, in the recent years, a type of opened community with mixed facilities become popular in the city and turn into the new unit to form the city. Some of them take the places of the dismissed industrial compounds, and let the place vitality again. SOHO (small office & home office) is a fresh conception for this kind of community. Considering the advanced age, there are more and more freelancers and small private offices who prefer to work at home or in a relax, home-like place. The conception combine the requirements of working and living to provide a community mixing the working space, living space and some other facilities serving the daily life. Its functional integration likes the *Danwei Dayuan*, but the community is opened to the city without enclosures both inside and outside. The slow traffic is adopted inside the community block; the public facilities (like garden, theatre, shops, etc.) also serve the outside people. For example, the SOHO modern city which is built on the block of one dismissed industrial compound in Beijing is a case in the situation. (**Figure 5.**)



Sanlinyuan Xiaoqu in sanghai, Wang, Z.,1994 **a.**

SOHO modern city, Zhu,X.,2000 **b.**

Figure 5. Closed Xiaoqu & opened community (Source: **a**. Li, D., (2001). *Chengshi guihua yuanli (Principles of Urban Planning, Planning of residential district)*. Beijing: China Architecture & Building Press.; **b**. © SOHOChina Ltd.)

Conclusion

Danwei dayuan generated in a specific historical period and it was a typical expression of the politics, economy and urban construction of the time. As an invention in the evolution process of urban unit, its diagram referred to the urban planning principles of both China and West, and became a critical archetype for the future development.

Danwei dayuan played an important part of shaping the urban framework of contemporary Chinese city. In the past 60 years, from the classic urban fabric of courtyard building system to the current modernized city, even in the international cities like Beijing Shanghai, the Chinese cities suffered a completed transformation. In 1950s, the first decade of P.R.C., *Danwei dayuan* was involved in the primary and the most important period of the formation of new modern urban pattern -the dimension of block, the grid of the street-, and furthermore, indirectly involved in formulating the urban planning codes and architectural codes which are also valid until now. The following urban renewal and the revise of city master plan are all basing on the existed urban framework of that time, while the construction of the new cities are basing on the related

codes which were edited at that time. Although some *Danwei Dayuan* are dismissed, the urban framework establishing by them effects the future city development continuously.

In addition, *Danwei dayuan* also forms a lifestyle of one period. It changes the mode of Chinese social life of traditional family, and provides convenient lives in a closed micro city which are memorable of many people. Although it induces many urban problems, its advantages provide many useful inspirations for the settlement design considering the following and future urban lifestyle.

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PROPSPECTIVE APPROACH. A TOPOGRAPHICAL LINEAR TOWN IN WALLONIA.
Learning from an in-depth analysis of the initial Louvain-la-Neuve planning experience

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Abstract

Since its foundation in 1973, Louvain-la-Neuve (LLN) (a New Town established around the French-speaking Catholic university campus, to which we shall refer as a feminine entity) has been explicitly considered – by her first settling managers - as a small neo-medieval town enclosed in a rampart-like beltway, acting as an isolated competitor and colonial civilization holder in her region (Walloon Brabant). Located at the very hearth of the Brussels metropolitan area's richest suburban area, LLN, has now grown as a university and as a comprehensive residential and industrial area. Due to her extraordinary attractiveness she is today bursting at the seams and unable to accommodate the rising demand for housing and activities –which have been untidily transferred to surrounding rural areas suffering of a lack of public facilities and of suitable planning policies for future development.

Our hypothesis is that the original planning scheme for the Louvain-la-Neuve new town (avant-projet de plan directeur –May 1969) and, to a certain extent, her actual structure, which is partially based on this first sketch, contains another urban idea of the city, alternative to that of the enclosed neo-medieval town. Explicitly influenced by the paradigmatic linear pattern of the English new town Hook, this alternative layout principle could initiate more intimate and balanced relationships between the city, its countryside and its landscape. Drawing on this linear pattern would allow addressing the ongoing mutations of this now-not-so-new town and of her region, taking the countryside into higher consideration and preparing other tracks for this new town to play a legitimate sub-regional role.

Keywords: Regional planning, Newtown, Linear city, Wallonia, Louvain-la-Neuve

Absurd would be, today, address the question of territorial – and urban - models in Europe abstracting ourselves from a more general inquiry about the Europe's actual structure as multilayered sedimentary realm. The hypothesis underlying this contribution is that a European territorial project could be defined as an attempt to associate in an equilibrated way three formally defined main territorial structures: the provincial, the national and the Eurocontinental structures, each of which ought to be quite clearly distinct and recognizable. A project that cannot be simply understood as "protective" nor as "completely re-founder", but multi-dynamic and co-operative, and intelligently, historically (= by prospective research), asserting the European structure as a multilayered structure.

Curating the exhibition "LLN 1968-73" held in Brussels from May to September 2007, we've highlighted:

- that the first (and also very late) attempt to create a metropolitan new town in our West-European Belgian regions has brought in opened conflict two main architectonic ideas of the city both commonly characterized by confusing the metropolis and an older initiative territorial layer's urban concept : the one (Gruen 1968) confusing the newtown to a hypertrophied national capital-city (as the garden-city in practice had already done) and the other (Lemaire 1973) confusing the newtown and the provincial *ville bourgeoise* (Louvain-la-Neuve as mirror of Louvain-la-Veuve (Widow-Leuven);

- that, during this first planning experience, and in the short timespace separating the two former apparently contradictory hypothesis assertion (end 1968 to spring 1969), a third hypothesis was addressed to the university's academic council – due to the young urbanists from UA group – and adopted by the university authorities as the newtown's "avant-projet de schema directeur" in May 1969;

- that the two main hypothesis in conflict are based upon the traditional bourgeois concept of the town understood as radioconcentric, pyramid-shaped (convex) and quite indifferent to topographical inscription, and that the third hypothesis lies on completely different formal rules : linear, vulcan-shaped (concave) and extremely sensible to topographical inscription (the discussion of this last aspect of the third hypothesis has been further developed in an article published two years later in cahiers du CERTU, 2009[1]);

- that part of today LLN as built-structure contains quite readable traces of this third hypothesis, although mixed and confused in the later radio-concentric developments.

In this short contribution to the common discussion at international level about the twentieth century newtown, I will try to show that the LLN birding process continues in the more direct way to act as the prototypical experiment for a frustrating regional planning in Wallonia and that an in-depth exploration of territorial possibilities based upon the "third way hypothesis" proposed in 1969 by the young UA group urbanists could help Walloon planners to get out from the contradictions and confusions lying into the choices deduced from the officially asserted LLN winning – but now loosing – magical formula.

Trying to identify a new territorial model, facing today's environmental challenge, and trying – in particular – to embrace a way out from the dominant metropolitan pattern based upon the couple central control district/suburban residential sprawl, Wallonia, and if we except the radical decreasing hypothesis, claims nowadays for two main scenarios : the first one based upon the densification of ancient (or "existing") town and village cores, the second one (but quite indecisive) based upon new town settlements.

[1] TERLINDEN, B. (2009). Relief artificiel/relief naturel. Regard prospectif sur l'avant-projet de schéma directeur. In P. Laconte (Dir.), *La recherche de la qualité environnementale et urbaine. Le cas de Louvain-la-Neuve (Belgique*) (pp.125-134). Lyon : CERTU

Although possibly able to face the environmental challenge from a merely scientific point of view, the first scenario (densification of existing town and village cores) already appears not to be convincing from a cultural point of view. Are we sure we are ready to restructure all our old small towns under the pressure of new density and energy standards?
Summarizing, this “new” “virtuous” scenario – pushed back by industrial interests – is based upon the same confusing principle as the one which mainly produced LLN (LLN as distorted image of the provincial *ville bourgeoise*) and now conduces Wallonia on the way to destruction of its authentic old country and town nucleuses.

The second scenario (new towns) hasn’t yet been improved, although it could be a firm sign of a European effort to face his construction. But, here too, we would have interest to go further into an in-depth critic of the LLN as-built experience, and face the contradictions of it. Mainly questions of localisation (avoiding too close localisation and hard competition with another ancient town), questions of access and means of transport (avoiding the need of huge car parking’s under or at close proximity of the town), and – last but not least - questions of cultural choices (witch alternative models to bourgeois models of settlements based upon private property, harsh opposition between urban and rural, etc). This second scenario ought to be approached in a European perspective, besides levels of regional or national architectures but trying to cultivate some equilibrated relationship with them, in addressing – in particular – the questions of the general formal principles of its multi-layered architecture and avoiding confusion between the layers.

To conclude on this way, we would like to embrace a path, suggesting a possible future way of understanding LLN as part of a European newtowns system clearly distinct from the national and from the pre-national formal structures with witch LLN has been tendentiously confused during its first 45 years of life.
This suggestion is directly deduced from the third hypothesis discovered in re-examination the group UA (the initial LLN planners group) old papers.

Looking back to the whole series of building operations pursued into and in the surroundings of LLN during these last decades, we notice how strong has been and continue to be the attractive power of the newtown – located at the right heart of the rich and dynamic Walloon Brabant -, as a focal research and development place for all types of advanced industries, as residential and commercial area and as transportation gate to Brussels as core of the Belgian metropolitan region.
The “small old town” model that conduces LLN development from 1973 until now, based upon Raymond Lemaire’s “visionary” hypothesis, demonstrates now its very limits : the 450 ha university ground has been completely covered by low rise residential developments (20.000 inhabitants instead of the initially planned 50.000). The core is unable to grow in surface due to the increasing massive extension of the industrial belt that surrounds it, but also due to the obsession of “concluding the town” (*achever la ville*) expressed by the old newtown founders that conducted them to promote a huge shopping mall and the *aula magna* as “definitive” stoppers of the town linear spine. The region around the town is completely covered by suburban detached houses. The automotive model remains dominant. The train access to this suburban detached houses region around LLN (urgently needed, to consent the easy access to the metropolitan core of Brussels, now very difficult to reach by car) conduces to the imperious need to a huge car parking closed by the centrally located LLN train station. The whole phenomenon has became unreadable, indifferent to countryside (the rural ground is going everywhere colonized by houses and factories) and to the possibility to be understood and experimented as cultural or ecological intelligent collective work.

The rediscovering of the third hypothesis on LLN newtown could support the following alternative proposal:

- instead of being exclusively read as centralized, closed on itself and belted phenomenon, LLN could be read as linear phenomenon (based upon his fishbone structure) physically opened on the outside of itself;

- instead of being exclusively read as unique and monocentricaly attractive , LLN could also be read as part of a larger linear residential and activities metropolitan region;

- instead of been read as a pure artefact, as a pure relief, indifferent both to his natural (ecological, topographical) and human (economical and cultural) location and relief, LLN could be read as part of a larger artificial lip developing itself on the natural border of the Roman-Walloon continental plateau looking North and the Baltic plain. This lip would be built by fragments, on the fringe and on the top of the valleys digged in the border of the Walloon plateau, and, as detached as possible from existing villages and towns, asserting the thalweg of the valleys as support of the main public sequential space of the town

The many fragments of this European city should be preferably linked by the railway, as initially previewed by the young LLN planners, who insisted and obtained a train station conceived as going through station.

Crucial questions – as those related to formal, architectonical choices, but also those related to the conditions and legitimacy of creating new towns in our declining and doubtful continent – have been left out of this short account. Through these few suggestions, my attempt is above all to encourage my contemporaries to go thoroughly what can seem to them a blocked present situation and to wake up the pioneer who sleeps into themselves.

Figures

Figure 1. The upper Malaise-valley, on the edge of the Walloon continental plateau (25km SE Brussels), before LLN university-town settlement (spring 1968)

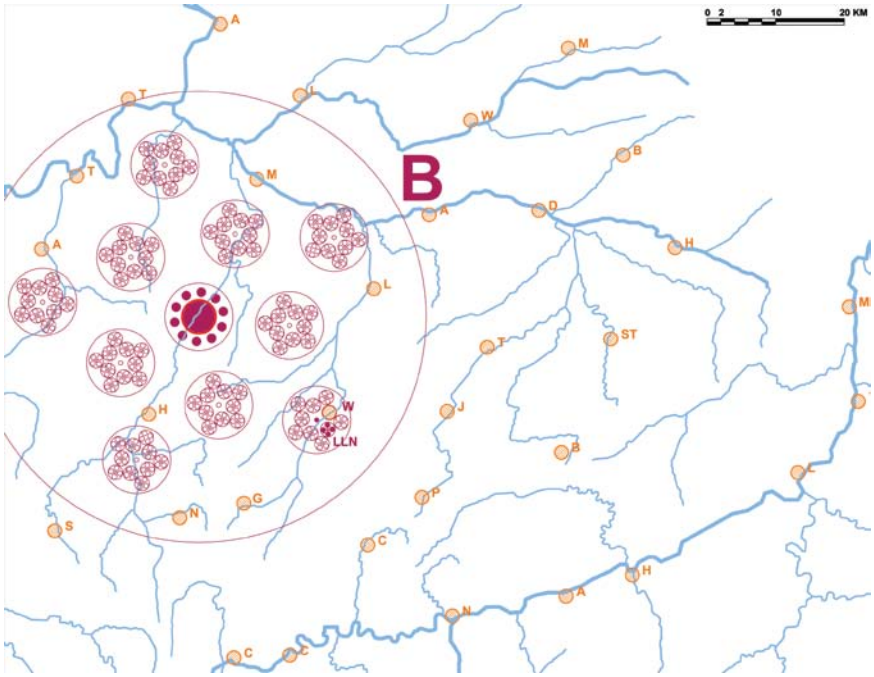

Figure 2. Hypothesis 1 (Victor Gruen - 1968). LLN newtown as part of a capital-city involving *cellular metropolis of tomorrow*

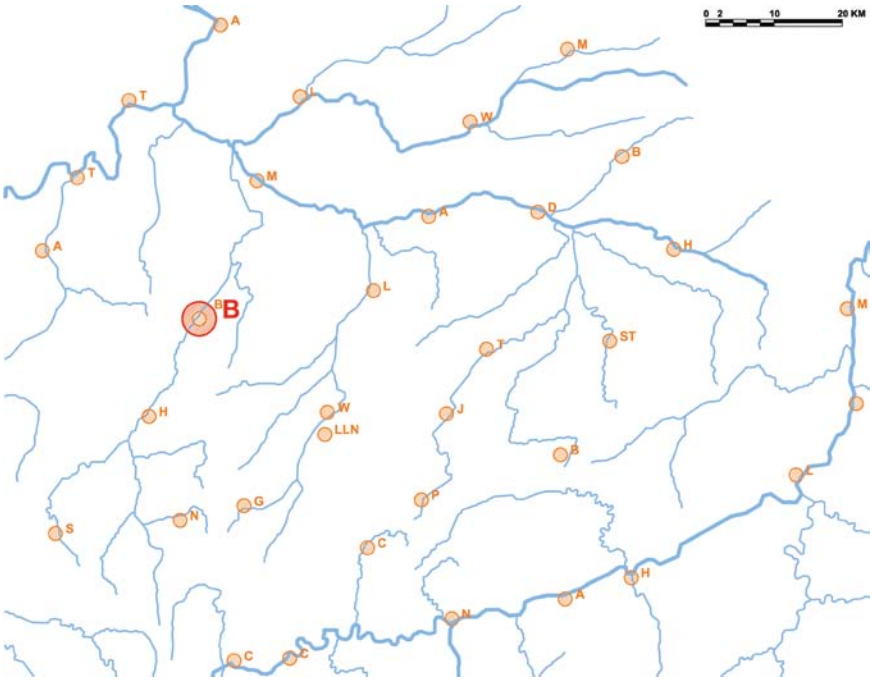

Figure 3. Hypothesis 2 (Raymond Lemaire and UA - 1969-). LLN newtown as a provincial town

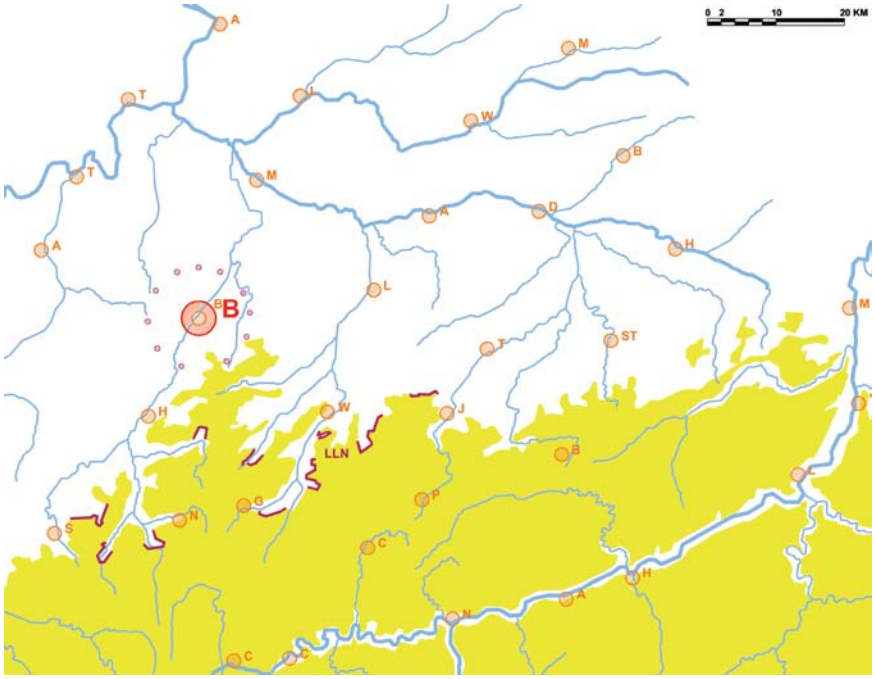

Figure 4. Hypothesis 3 (UA young urbanists – 1968-1969) and our prospective approach. LLN as part of a topographical linear city on the edge of the Walloon continental plateau

Figure 5. Hypothesis 3. Prospectic view of the university-newtown (drawing : Pierre Bugod) (1969)

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AN OVERVIEW OF BRAZILIAN NEW CITIES IN THE 20TH CENTURY

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Abstract

The creation of New Cities (NCs) – previously planned and professionally designed – can aggregate interesting details to the history of urbanism. It is known that a considerable part of the exemplars of idealized cities emerged from utopic propositions, as criticism towards the contemporary city and from the desire to create the condition of an ideal society, educating its citizens according to its urban organization and its architecture, thus providing them with the necessary condition for socioeconomic development. It is within this context that the present work is inserted, seeking – by means of the use of specific bibliographic referencing and the articulation of a host of Brazilian exemplars – to reveal a perspective of Lusophone New Cities. This paper intends to explore and look at a temporal line more in-depth by benefiting from the more than 200 cases of NCs implanted in Brazil, with the purpose of answering the following question: Can we find Brazilian archetypes which persisted over time or that can mark some historic period? This is an overview of Brazilian NCs which will allow us to better understand this particular scenario and reveal other exemplars beyond than just the most best-known case: Brasilia.

Keywords: New Cities; Brazil; 20th century.

A particular concept for New Cities

It is a consensus: every existing city has already been a new city before, one that was generated from specific political, economic, social and/or cultural circumstances and implanted in sites of interest. However, the origin of a city can be differentiated by classifying it, as did Jean-Louis Huot:

> Certain [cities] are born through its growth on a non-urban element (castle), others by the spontaneous development of a village, and still others are born by the wish of man in a place where nothing or few dwellings existed. When the plan of the city is thought beforehand and

> predicts the location of key organs, the urban agglomeration is developed within an artificial framework following a plan imposed by the will of man. Such type of agglomeration is often called created city. (Huot, 1988, p. 8)

For the French author, to understand the new city as an urbanistic type is to go beyond its foundation; it is to return to the antecedent period and investigate the circumstances and actions attached to them. Such dislocation enables us to separate spontaneous cities from NCs, which were, at a moment prior to its appearance, conceived, formulated, idealized, intended, invented, thought, planned, premeditated, programmed, designed…

Above are designations that have been used to qualify an urban agglomeration created *ex nihilo*, opposing to the traditional development of a city which little by little acquired its *status*. Following is the concept of NCs that was particularly developed (Trevisan, 2009) as urban nuclei: 1) cities which were created by the will of public power or private entrepreneurship and grounded on specific actions: 2) seeking to cater, at least initially, for one or more dominant roles (*e.g.* administrative, colonization, railroad, relocation, balneal and satellite purposes, among others); 3) implanted in a previously chosen site; 4) based on an urbanistic project; 5) designed and/or developed by (a) defined agent(s) – skilled professional(s) eventually; and 6) within a determined temporal deadline, even implicating in a reasonably accurate foundation time. These are six applicable attributes to models produced throughout the ages.

Kahun, in 19th century B.C. Egypt, regarded as the first example of a city planned in grill structure in the West. The cities under the Greek rule of Miletus, in 5th century B.C. Asia Minor, or Turios and Piraeus, in 1st century B.C. Greece. The cities of the Roman Empire, such as Cosa, strategically implanted north of Rome in the 3th century B.C., and Timgad, Algeria, in the 1st century A.D., as part of the Roman domain over the north of Africa. The *povoas,* the *bastides* and the *villes d'evêque*, in Medieval Europe. Aztec Teotihuacán, in pre-Colombian Mexico. The Forbidden City, in 15th century Beijing. The Laws of the Indies, which guided the projects of the new cities of Spanish America. The entrepreneurial European cities, with the advent of the industry from the 18th

century. Las Vegas, in 1905 USA, and the other NCs created as a result of the 20th century tourism boom. The English *new towns* or the French post World War II *villes nouvelles*. These are a few examples that the existence of NCs has long been part of the history of world urbanism.

This, therefore, concerns a type of '*unitarily designed city, the absolute promptness of the idealizer and the builder to be able to predict the physical, psychic needs of the inhabitants and translate them into architectonic forms*' (Bertuglia; Tich; Stanghellini, 2004, p. 90). These are productions – with greater or lesser urbanistic rigor, greater or lesser ideological domain, greater or lesser cultural expression – that have permeated, during the last five years, the history of Brazil, a country replete with NCs.

Brazilian New Cities before 20th century

In Brazil, the practice of this urbanistic type is considerable, in view of the country's short life history: five hundred years. From data obtained in the urban historiography on the colonial period, some villages and cities founded in that time followed certain previously established rules, was it for an *ex-new* plan of occupation, for a sketched project, for an ordered orientation of implantation of urban structures or even for some kind of legal imposition, such as the *Royal Letters*, which determined the location of the agglomerations and their urbanistic plans (Santos, 1968).

In most cases, an elementary organization characterized the urban scenery of just-implanted nuclei. These were made of a central square, usually with a pillory, around which the main buildings stood (church, customs house, chamber house and jail etc.), thus establishing a directing relationship between power and space. The remainder of the outline consisted of pre-existing pathways where buildings lined up side by side, as with Lusitanian urbanism of Muslim influence. From the pathways, with their irregular drawings, the urban plot developed grounded on the Lusitanian technical knowledge acquired throughout the centuries in the old continent.

Curiously, it was this technical substratum that enabled such cities as Recife, São Luís and Salvador to urbanistically differ from all others. During the invasion by the Dutch, the Spaniards and the French, between 1580 and 1640 (a time when Portugal was under the Spanish rule), these cities incorporated concepts belonging to the urbanistic repertoire of each one.

At the end of the 17th century, the Crown turned its attention to the urbanization of the Colony, expressing concern to occupy it and protecting it via its occupation. For that, the Marquis of Pombal[1] was responsible for increasing the urban net with cities implanted and governed according to planning and administration norms. Until that moment, the precarious existing urban net was restricted to coastal villages and Jesuitical nuclei (despite the missionary settlements being extremely regular and organized according to the religious order: Carmelites, Franciscans, etc.). The urging need was '*not only to form this or that nucleus, but to simultaneously colonize the great extent of the entire coast. This was the required condition for efficient defense.*' (Prado Jr., 1933)

Figure 1. Westwards. The foundation of new urban nuclei in the country's inner part during the Pombaline period (18th century): defense and territory occupation. Source: Delson, 1979, 97.

[1] Sebastião José de Carvalho e Melo, the Marquis of Pombal, was born in 1699 in Lisbon. Graduated in Law and History, he became a diplomat. In 1750, he took charge of the Secretary of State for Foreign Affairs and War, by order of D. Joseph I. After the earthquake that devastated Lisbon in 1755, he became a planner of its reconstruction, proposing modern and rational city planning. From this time on, he acquired a prestigious political position in the Crown, modernizing the administration, the finances and the military system, in addition to banishing the Company of Jesus from Portugal and its domains. In Brazil, he was responsible for moving the capital from Salvador to Rio de Janeiro in 1763, for economic and military reasons. With the rise of Dona Maria I in 1780, the Marquis was deposed from office for abuse of power. He died in 1782, exiled in his palace of Pombal.

The Marquis's 'illuminist-conservative project' was a true 'populating endeavor', by means of the creation of new nuclei (the Pombaline villages) and the agricultural colonies associated to urban settlements (Fridman, *in* Pinheiro & Gomes, 2005). The Europeanizing process of colonial urbanism, introduced by Pombal, can be observed in 37 plans of new villages with orthogonal scheme, designed and implanted in several regions of the country, from Amapá to Santa Catarina, rosing Mato Grosso (Delson, 1979). Such action fostered, all at the same time, the occupation and greater protection of the territory, the increase of tax collection and the strengthening of the Portuguese domain.

Another relevant action was the foundation of military schools of engineering in the cities of Salvador and Rio de Janeiro. In these schools, teachings of regulating elements of architecture and urbanism were introduced – all of which were permeated of such renaissances and baroque concepts – as: architecture with similar façades, orthogonal scheme for urban streets and roads, establishment of the size and shape of land lots (Reis Filho, 1968). In this way, villages and cities started to be designed by engineers and implanted by the 'street-maker' (who carried out the engineers orders) in places which until then were isolated from the nation, '*subordinated to a prototype whose scheme contained baroque concepts (straight streets, well delineated squares, uniformity in the architectonic elements) easily adaptable to the local conditions*' (Delson, 1979).

The military engineers were regarded, among other things, as the 'workers of the [Portuguese] urbanism', in charge of 'making cities'. Their actions were targeted, more specifically, at field data collection and '*remodeling or new fortified buildings, in which, in the interior of star-shaped (renaissances) forts, small urban nuclei emerged'* (Bueno, 2000). However, the 'know-how-to-make-cities' continued to be more empirical than theoretical in the country.

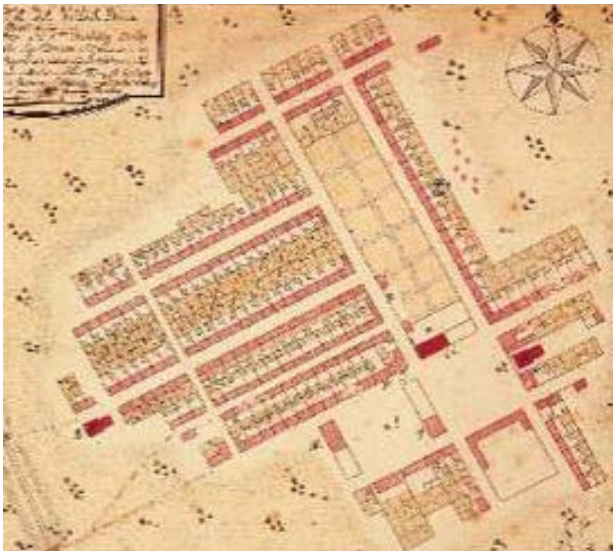

Figure 2. Vila Bela (Mato Grosso). Designed by Gaspar João Geraldo de Gronsfeld in 1773, it reveals a cross-shaped plan with a civic space (esplanade) and residential buildings bordering the streets (in pink). Source: Reis Filho, 2000, 259.

At the end of the colonial period, however, due to Brazil's continental dimensions and the existing economic-social aspects (the monoculture of exports and the proslavery model) – in addition, evidently, to the metropolis's own internal problems –, the Lusitanian policy of occupation of border regions, formation of urban nets and creation or urban nuclei would not achieve such expressive results. Not even the coming of the royal family, in 1808, or the Proclamation of the Independence, in 1812, was able to change this scenario. In 1890, the urban population represented only 6.8% (at present this number is 82%) of the total population. Only the economic-political-social changes, which directly interfered in the social division of labor, already at the end of the 19th century, could foster the urbanization of the territory in a more expressive way. It was in this context that urbanism, in its broadest sense, as a process of social change, arose as part of the transformations in the urban culture of the Brazilian society.

In the 20th century, beyond Brazilian new capitals

For most of Brazilian urban researchers, the 20th century starts with the foundation of *Belo Horizonte* in 1895, the new capital of Minas Gerais State

(Leme, 2005). And it was not the only capital city planned in Brazil along the last century. Also, *Goiânia* (capital of Goiás State, projected by the urban designer Attilio Corrêa Lima in 1933), *Boa Vista* (capital of Roraima State, expanded project by civil engineer engenheiro civil Darcy Aleixo Derenusson in 1944), *Brasília* (the new Brazil's capital, created by Lucio Costa in 1957), and for last *Palmas* (capital of Tocantins State, designed by *Grupo Quatro* studio in 1988). Further than those five new capitals, tens of new cities were planted in our territory.

With the Proclamation of the Republic, in 1889, the processes of urban modernization were incorporated to the political agenda under the shelter of different paradigms: order, progress, civilization, hygienism, embellishment etc. These were concepts that sought to break the ties of the colonial past, either through interventions in the intra-urban space, such as the improvement and embellishment plans for the cities of Rio de Janeiro e São Paulo, or through the creation of NCs, like Belo Horizonte.

The Brazilian territory started to be thickened by new nuclei directed by political guidelines and economic dynamics. Besides the plan for the new capital of Minas Gerais, colonization cities and those located near borders gained their first exemplars, as did the entrepreneurial villages. Those were founded to offer support to a given industrial endeavor (*e.g.*: Votorantim and Alumínio, in São Paulo, Monlevade and Cidade Eldorado, in Minas Gerais; Volta Redonda, in Rio de Janeiro; Fordlândia, in Pará etc.).

In the same way, balneal cities were planned. The creation of the coastal city of Guarujá (1892) and the balneal resort of Águas de São Pedro (1936), in the State of São Paulo, are flashes of that moment in time. The first emerged as a venture carried out by the *Companhia Balneária da Ilha de Santo Amaro*, attached to the economic group Prado, Chaves & Cia., whose urbanistic and architectonic plan was in charge of civil engineer Elias Fausto Jordão Pacheco (Reis Filho, 1994). The second can be considered Brazil's first City-Garden,

designed by engineer Jorge de Macedo Vieira[2] – the same designer of the NC of Maringá, in the Paraná State.

In the Old Republic (1889-1930), the projects of NCs became more frequent, with the incentive of colonization policies and territorial occupation and the agricultural economies of small properties (in the south) and coffee (in the southeast). Implanted alongside railroads, specifically from each railroad station open on the extension of the lines going west, center-west and south of the country, such cities were the fruit of individual action or private groups with the purpose of speculate agricultural land, as were the ventures by the *Companhia Loteadora Norte do Paraná*, of English capital.

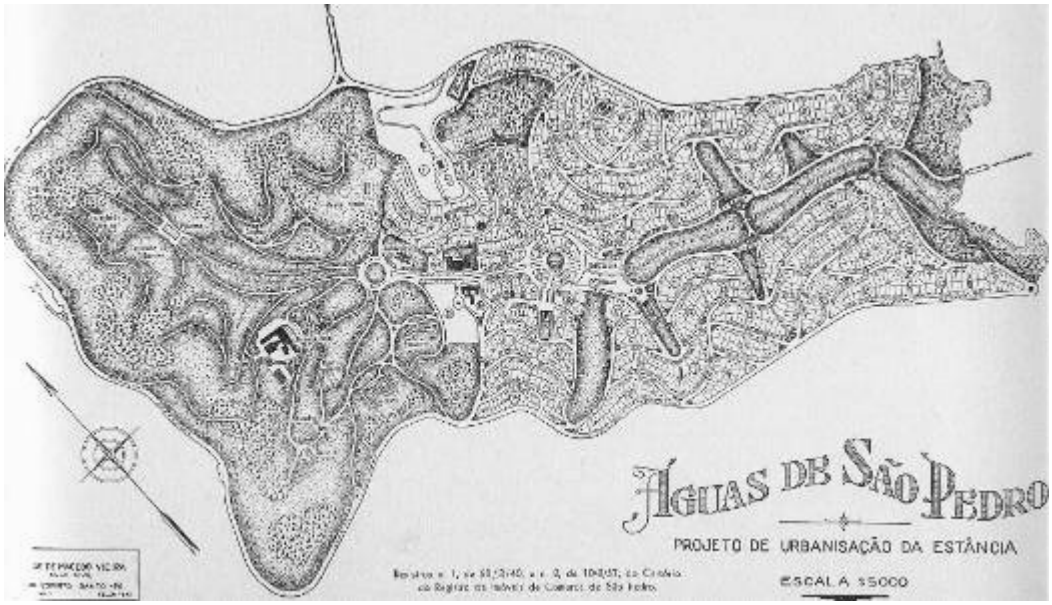

Figure 3. Urbanistic project of the balneal resort Águas de São Pedro, by civil engineer Jorge de Macedo Vieira, 1936. Source: Trevisan, 2003.

From the decade of the 1930's, known as the "March to the West", the occupation of virgin lands, which were until then covered by the Atlantic Forest, accompanied the development of coffee farming and railroads. Initially, catering

[2] Jorge de Macedo Vieira's formation as a civil engineer had its roots on the theories applied in the Polytechnic School of Sao Paulo, between 1912 and 1917. In the last year of college, Vieira began his professional work as an intern in the City of São Paulo Improvements and Freehold Land Company Limited. Working as an intern from June 1917 to January 1919 in the *Companhia City*, Vieira had the opportunity to intimately experience the ideas and urbanistic productions of English architect Richard Barry Parker (*Jardim América, Parque do Trianon, Pacaembu, Alto da Lapa* etc.) and, mainly, to approach the urban typology principles of City-Garden (Trevisan, 2003).

for the needs of a rural oligarchy (to bring labor and enable production outflow) and then for the interests of land development companies (to attract “pioneers” for land occupation), these railroads represented a fringe of the São Paulo territory, regularly punctuated by urban nuclei (Marx, 1980).

After the introduction of the railroad and the occupation of rural areas, cities began to emerge as support centres to the resident population in this region. These cities were planned quickly and drawn from paths which had been cut through forests. Such projects were financed by private companies or individual initiatives. Most of them were placed bordering the railroad tracks, and each core corresponded to a train stop (station), at the time, an important means of transportation for both people, as well as for the draining of agricultural production. Among these cities, there were those which stood out as regional centers: Andradina, Jales, Marilia, Bauru and São José do Rio Preto, and Londrina in Paraná State.

The NCs, built in the States of São Paulo, Paraná, Minas Gerais and Goiás at the time, totaled over two hundred (Andrade, *in* Pinheiro & Gomes, 2005). Although some authors disregard the validity of this model for the Brazilian urbanistics owing to its monotony and lack of a more elaborate design, self-conducted studies reveal that some cities located northwest of São Paulo, such as Perreira Barreto (of Japanese colonization), Luiziania, Panorama and Votuporanga, as well as Maringá and Cianorte, in Paraná, were given elaborate urbanistic projects (site adjustment, planting of trees, complex zoning, sanitation etc.).

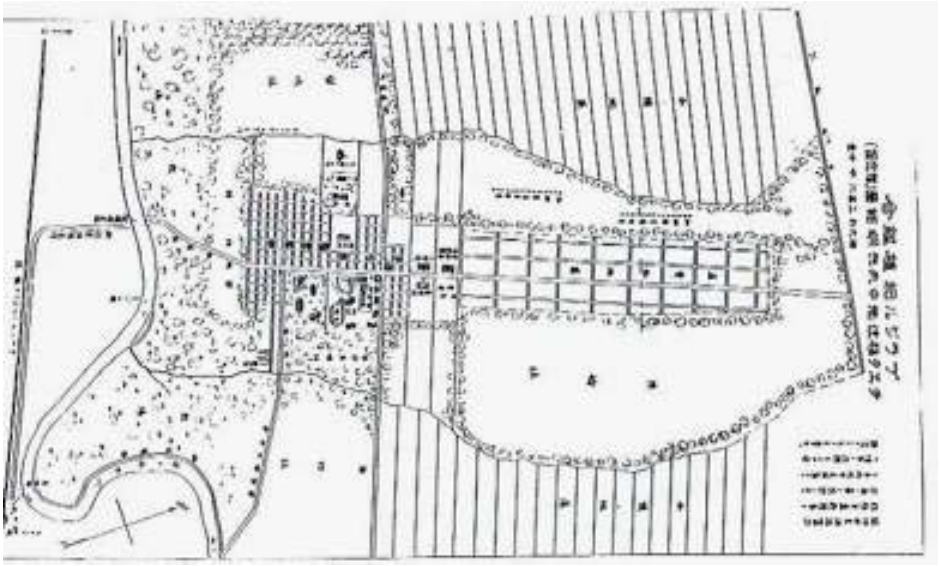

Figure 4. Urbanistic Project of Pereira Barreto, founded in 1929 by Mitsussada Umetami. Rural and urban areas planning. Source: Trevisan, 1998.

The urbanization of the country's interior started to gain intensity, thanks to incentive policies towards territory occupation, performed by both the federal government by Getúlio Vargas (1930-1945), through the *Fundação Brasil Central* (1943), and the state governments (Neiva, 1942).

Soon this picture of urbanization would change, due to the other types of actions that promote NCs, having been adopted, particularly: 1) the transferring of the federal capital from Rio de Janeiro to the *Planalto Central (*Central Highlands) in 1960 – leading to a new type of NCs, which is currently still expanding: Brasília, its satellite-towns such as Taguatinga (1958) and Guará I and II (1967); 2) the construction of the *Belém-Brasília* road from 1950 to 1970; and 3) the specific policies adopted during the military regime (1964-1985), in response to geopolitical and/or infrastructure demands.

If, in previous decades, NCs represented an alternative means of urbanization adopted in certain regions of the country – especially São Paulo, Paraná and the new Federal District –, it was in the military period (1964 – 1985) that they were disseminated in similar proportion in most states of the country, another characteristic was that they responded to diverse needs. Between 1957 and

1989, 65 examples of NCs have been identified, of which: 31 are located in the Midwest region, 17 in the Northern region, 11 in the Northeast region, 04 in the Southeast region and 02 in the Southern region. In their original function, these offices would serve as business hubs (Siderópolis in Santa Catarina, Carajás, in Pará; Caraíba in Bahia), for colonization purposes (Juruena in Mato Grosso; Normandia, in Roraima; Iroí, in Paraná), as satellite-towns (Gama and Ceilândia, in the Federal District), or as support to major highways (Campinorte, in Goiás; Alvorada, in Tocantins; and Marabá, in Pará).

During the years of military rule, with an urban planning policy centralized in the SERFHAU (the Federal Service of Habitation and Urbanism), and later in the CNPU (the National Commission of Metropolitan Regions and Urban Policy), the planned NCs were created as propositions of integration and development of remote regions of the country. Such fact especially occurred in the northern and center-western regions, through the creation of new territories or states, the implementation of such plans as the 'Humboldt'[3], 'Polamazônia' etc.; or as increment actions of the national infrastructure (highways, hydro-electric power station, plants etc.), which in turn triggered the creation of more cities or the relocation of the existing ones, which would become submersed with the creation of dams. As NCs of territory occupation we can mention: Alta Floresta, Tangará, Aripuanã, Sinop, in Mato Grosso, and Serra do Navio and Vila Amazonas, in Amapá; and as NCs of relocation, Itá, in Santa Catarina, and Nova Ponte, in the Minas Gerais Triangle.

[3] Proposition developed between the Federal University of Mato Grosso and the Ministry of Planning, with which the development of an occupational model to complete the Project of the occupation of the Brazilian Amazon was intended.

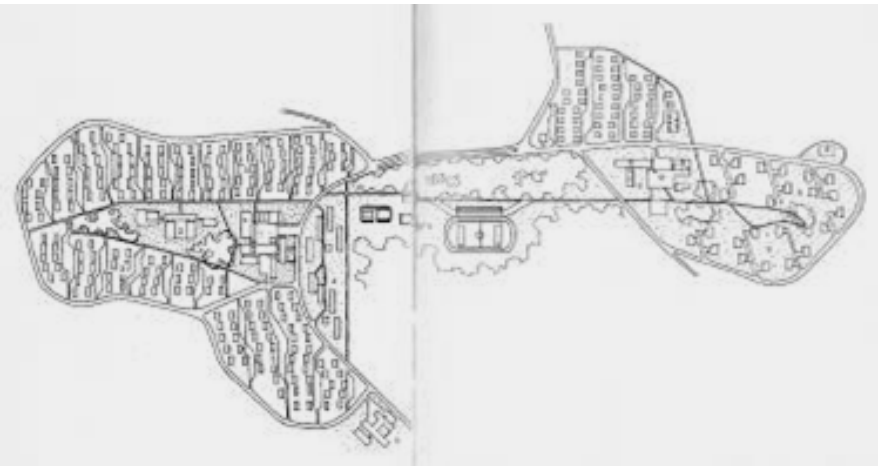

Figure 5. Urbanistic plan of the Serra do Navio (Amapá), undertaken by ICOMI S.A. in 1955. Project by architect Oswaldo Arthur Bratke. Source: Segawa; Dourado, 1997, 240.

Under the command of SERFHAU, Amazon area reassumed its place of importance in the geopolitical context, becoming the object of motions for colonization and national security issues. As the embodiment of this effort, we now have federal highways such as: *Belém-Brasília* and *Transamazônica*, whose resources simultaneously connected the northern region to other regions in Brazil, boosted existing urban centres, made advancements in the urban network by creating NCs, and gave support to the agricultural production. In the group of NCs from the *Belém-Brasília* highway, we have: Paragominas (Pará), Estreito (Maranhão), Araguaína (Tocantins), Guaraí (Tocantins), Paraíso do Tocantins (Tocantins), Gurupi (Tocantins), Alvorada (Tocantins) and Ceres (Goiás). However, in the urban point of view, these cores do not always reveal 'thoroughly elaborated designs' (Brazil, 1972).

In the same manner, the programs to colonize barren areas such as *Polamazônia and* the master plan *Aripuanã-Humboldt* took place. In both, the deployment of NCs was a recurring subterfuge in selected areas of the Amazon due to their potential. As a test case we have Aripuanã (Mato Grosso), which received special attention from the Ministry of Planning, of the Interior, of Education and Culture as well as from the State Government, through a specific agreement signed in 1973. It was named Project *Aripuanã-Humboldt*, and it envisioned: the implantation of the pioneer core of Humboldt, the construction

of the highway from Humboldt-Vilhena (470km), a research program on forests, soil and natural resources, among other scientific interests. Being the most attractive for private capital and immigrants from other regions, about two million hectares of land between Juruena and Aripuanã, were sold to individuals. This enabled the emerging of numerous NCs, such as: Sinop (1974), Alta Floresta (1975), Juruena (1975), Juína (1977) and Paranaíta (1978).

Regardless of the ideological stance and the less than democratic means adopted by the military regime – a means being; unfortunately, justified by its 'ends' – in order to fulfil their endeavours, an unprecedented urban production occurred. Not only in numerical terms, due to the creation of municipalities which resulted in urbanization, but also through the diversity of strategies and methods applied, the professionals involved, urban typologies employed and, above all, due to the profound consequences it had on the demographic and territorial organization of the country.

Brazil in the 20th century, a country of hundreds New Cities

Therefore, throughout the 20th century, Brazil became an urban country, constituted not only of cities of spontaneous origins, but of a significant percentage of previously intended and designed cities, as stated Pierre Monbeig in 1949:

> It all happens as if this country knew in seventy-five years, one century at most, that which took millenniums to do in Europe. And it is certainly this: birth and formation of rural landscape, foundation and growth of cities, construction of a network of communication, mixture of races, elaboration of a regional mentality. (Monbeig, 1949)

What we so far have is a brief historical panorama about the Brazilian NCs that reveals the remote origin of such type and its encompassing diffusion. A presentation which allows us to better understand the universe of NCs, their meanings, and their applications in several contexts; a true "experimentation field", as some authors prefer to define them. Idealized objects, at a first

moment, like essays for a perfect world; objects which in favorable circumstances have become real sceneries. A peculiar temporal process which deserves due respect.

Acknowledgments

This article is supported by the *Laboratório de Estudos da Urbe* (LabEUrbe) from School of Architecture and Urbanism of University of Brasília. This paper is funded with funds by Programa de Pós-Graduação em Arquitetura e Urbanismo (PPG-FAU-UnB).

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CITIES' STRUCTURAL MATRIX FROM 1950S TILL TODAY – Between superlative and palliative

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Abstract

The paper develops an overview through urban proposals within the second half of the 20th Century, establishing a framework about the role of structural matrixes into cities' morphological redefinition, based on a methodology with: bibliographical review; cross-references about urban proposals that contribute to "turning points" in terms of urban theory in the second half of the 20th Century; comparative analysis of urban proposals from the work of ARCHIGRAM, Y. Friedman, C. Pruscha, W. Dieter Prix, E. Zobl / H. Schulitz / D. Dashiell, F. Haller, L. Woods and BELGIAN TEAM KINSHASA. The criteria adopted to choose these eight examples sets on the visionary aspects they developed and its relevance when approaching today's urban condition.

Cultural and social transformations, scale shifts and technological advances pushed urban paradigms towards megastructures, which configured urban utopias under a (post)modern urbanism. The redefinition of systems, networks and urban appropriations was characterized by an emergent pop culture where individualism, interpretation, indeterminacy, fragmentation and kinetic perception of urban spaces reconceptualised cities' structural and symbolic elements. The main goal is to grasp how cities' structures evolve into prolific and increasing layouts of flows, interchange, connectivity and a demand for mobility – a process that contributed to generate renewed urban logics. Therefore, the scope is to determine how the dissolution of compact, coherent and homogeneous urban fabrics leaves space to understand cities not as a linear text but as diffuse, splintering and heterogeneous urban structures.

Among this panoramic outlook, it is displayed how theoretical legacy of large scale structures was overcome by contemporary non infra-structured and extensive urban territories, characterized by uncertainty and unpredictable processes of transformation. The conclusions sets the connection between the superlative structures of urban proposals from the last quarter of the 20th Century to today's palliative strategies that improve fragile urban structures, based on global multiplicity, diversity, and micro scale dynamics.

Keywords: City structure, megastructure, infrastructure, superlative strategies, palliative approaches

Opening annotations

The issues developed within the paper results from the articulation and systematization of information from different bibliographic references presented by the author in his classes when lecturing "Theory of Urbanism" and "Urban Project", in the Integrated Master in Architecture and Urbanism at ESG/Gallaecia University School, in Vila Nova de Cerveira (Portugal); and "Theory of Architecture and Urbanism", in the Integrated Master in architecture at ESAP/Artistic University School, Oporto (Portugal). Alongside with academic activities, the author develops research in the area of (in)formal urbanism and morphological analysis (at CIESG/Research Centre at ESG), in which it turns necessary to know how to read different cities' structural matrixes by comparing diverse urban forms and its patterns and rules, complemented with bibliographical review and cross-references about urban utopias/contexts that contribute to "turning points" in terms of urban theory. This methodology was adapted to carry out this paper.

From the second half of the last century a lot has changed in terms of the role of cities in the world and how they affect not only all of us, but also the environment and its resources. The reconstruction of urban fabrics and its growing extension to surrounding, suburban and/or periphery areas, as long as significant shifts related to cities' models evolution, types of urban transformation, incremental urban economic activities and uses, new cultural and social dynamics, globalization, migration phenomena's, world trading liberalization, among others aspects, highlights the importance of cities as places that agglomerate more and more people during the last decades, mainly after the last quarter of the 20th Century till today. It is now known that there are more people in the world living in urban contexts than in rural areas. From this framework, it possible to say that, in general, cities' structural matrixes suffered relevant reconfigurations in order to respond to challenges set by cultural and social shifts, increasing technological developments, infrastructural requirements and devices, mobility and fluxes interfaces, as long as issues related to urban informality and self-organization.

One can verify that cities' deterministic perspective has gradually been replaced by approaches close to urban complexity, based on a wider perception of the urban spaces and its territories. When looking back to urban history and theory, from the 1950s till today, it is possible to identify periods marked by optimistic urban proposals, configured in very well known utopian projects to the cities, and – on the other hand – the collapse of some of the principles that organized the functionalist and zoned cities. So, between utopian urbanism and very fragile and segregated urban realities, it is possible to establish crossed nexus between superlative urban "fantasies" ('surrational': more akin to the seductive, but unrealizable – Gamburg and Thomas, 2010, p.49) set to deal with urban evolution, and palliative strategies that only are able to minimised unprecedented precarious urban living conditions within a considerable part of the world urban population has to deal with in their everyday life. The paper will argue that in between this paradox one may find the suitable way to think about the present urban condition. Today it is not possible to frame a "creative-destruction", which replaces complex urban mosaics and their intricate layers of issues.

A critical panoramic outlook to urban experimental proposals since 1950s

Gamburg and Thomas (2010, p.46) refers that all the apologias and manifestos of modern architecture defined the movement in three ways: i) sociological – as a response to the rise of the professional middle classes ('the idealized "citizen") and the post-industrial proletariat (the idealized "worker")'; ii) technological – as a re-conceptualization of urban space in response to the automobile and airplane, and as the incorporation of new construction techniques, industrial materials and equipments; iii) image-form –

> *'As prodigal heir to high-modernism, the period from 1960-1975 is interesting as a time of idealistic projects which took underlying modernist narratives to their logical extremes, becoming what Lewis. Tsuramaki. Lewis (LTL) would term "surretional". Some of these were serious propositions, but many were not, and required a super-suspension of disbelief from the viewer. These proposals tested the inherited tenets of modernism. Today,*

> *they offer a bridge between the modernist mythos and the evolving narratives of our own time'.*

The previous statement sets the framework and justifies the main perspective developed within this paper – instead of 'surretional' it is proposed the already mentioned term *superlative*, due to its wider range of meaning.

According to Benévolo (1994, p.942), in the 1960s took place a shift that only now one can emphasise. He not only considerer that modern architecture expands itself everywhere in the world, achieving in this process countless results and diverse impacts, but also – on the other hand – begins to lose the characteristics that sets it as an united movement, as had happened in the first half of the 20th Century. Benévolo (1994) keeps on saying that:

> *'Este viraje se evidencia antes en los hechos que en las discusiones teóricas, e intentaremos captarlo por medio del examen de cuatro series de acontecimientos: la crisis de las formas de asociación propias de los cincuenta años anteriores, la muerte de los maestros, las experiencias proyectuales de grandes dimensiones –que ponen en prueba, de forma real, los modelos de agregación estudiados anteriormente– y el debate teórico que sale al paso de estos acontecimientos'* (p.942).

Sadler (2005, p.13) points out that the triumph of mainstream modernism had been to interpret and institutionalize the work of the modernist pioneers, redeploying the pre-second World War "heroic phase" as the house style of corporate-democratic post-war reconstruction. He continues arguing that by the 1950s, modernism was foregrounding an image of tidy and fair cultural under that drew upon De Stijl and Bauhaus work in the 1950s. Official sanction of modernism deprived it of its inherent avant-garde quality. Valdivia (2004, p.26) states that the rationalism crisis's set in to CIAM[1] IX was due to a complex process that reveals the fracture within the Modern Movement – a rationalist concept in which coexist positivism and Hegelian ideology, combined with a strong belief in reason

[1] Congrès Internationale de l'Architecture Moderne.

and clear logic – and phenomenological and existentialist philosophies that were present in to post war culture. Valdivia (2004) goes on stating that:

> *'En ese marco, el modelo urbano que sostienen los CIAM aparece a todas luces inadecuados para responder a la variedad y vitalidad que se considera necesaria para la vida urbana. El deseo de conformar la sociedad a través de la forma física da paso –de un modo ciertamente equivocado–al objetivo de proporcionar a la sociedad, y a cada uno de los hombres, el marco para desarrollar sus opciones vitales'* (p.26).

Going back to Benévolo (1994), it is said that post-war reconstruction results in a period of social and economic development which, in America, was already perceived in the 1940s, but in Europe only happened in the following decade. When referring to 1960s and 1970s, this author claims that:

> *'la reconstrucción ha terminado y el desarrollo continúa en todo el mundo. La población aumenta, tanto en los países industrializados como en los más atrasados, y las características del desarrollo –con el traspaso de la población activa de la agricultura a la industria, el crecimiento de las funciones terciarias, cambios de la composición demográfica y de los estilos de vida– multiplican el impacto sobre el ambiente construido que invade ya toda la superficie del planeta. Mientras la población mundial crece, entre 1960 y 1970, de tres mil millones a tres mil seiscientos millones aproximadamente, la población urbana pasa del 30 al 40% (de 1000 a 15000 millones) y las grandes aglomeraciones aumentan todavía más'* (p.965).

Franco *et al.* (2010) claims that the transformations attached to second post-war époque, within the cultural movements of the 1950s, configured the transition between the modern and the post-modern period. It is said that post-modernism has its origins in the 1960s of the 20th Century, into the counterculture historical context. This was a time of total transformation of ideas and strategies, which aim was to set a diverse framework from the one establish by the modern period. Cultural and social transformations, scale shifts and technological advances pushed

urban paradigms towards megastructures, which configured urban utopias under a (post)modern urbanism. The redefinition of systems, networks and urban appropriations was characterized by an emergent pop culture ("pop urbanism" – Sadler, 2005) where individualism, interpretation, indeterminacy, fragmentation and kinetic perception of urban spaces reconceptualised cities' structural and symbolic elements. As Vegara and Rivas highlights (2004, p.93), about functional urbanism:

> *'Su esquemática racionalidad parecía aspirar a organizar la compleja vida individual y social en la ciudad para hombres arquetípicos, sin diferencias de clase o cultura. A la vez, la ciudad funcional se materializa dentro y fuera de la ciudad existente de la posguerra. En la renovación de los centros urbanos y en los nuevos grandes barrios de vivienda social periféricos, los principios funcionalistas se aplican sistemáticamente, marcando una primera etapa de inversión pública ante la necesidad de alojar a los nuevos residentes de la sociedad industrial y de atender el proceso acelerado de crecimiento urbano'.*

From the diverse aspects revealed in the different references above mentione, in this paper it will be draw attention to the question of scale, or as Benévolo (2004, p.964) point out: *'El desafío de la gran dimensión'* (paper's author free translation to English: "The challenge of big dimension"). Koolhaas and Mau (1995, p.494) refers to it as: 'Bigness, or the problem of Large'.

It is through this focus that the work of authors like ARCHIGRAM, Y. Friedman, C. Pruscha, W. Dieter Prix, E. Zobl / H. Schulitz / D. Dashiell, F. Haller, L. Woods and BELGIAN TEAM KINSHASA, will be briefly approach in order to understand how the inheritance of large scale structures was overcome by contemporary non infra-structured and extensive urban territories, characterized by uncertainty and unpredictable processes of transformation. Martine *et al.* (2008, p.3) refers that cities will have an increasingly critical role in future development scenarios. It is also pointed out that urbanization can be critical for economic growth, for stabilization of population growth and for long-term sustainability. They highlight that this potential will require a proactive approach and better governance than has been observed up to now. According to this point of view, and adapting this words, as already mentioned in this paragraph, the following part of the paper

consubstantiate an overview through urban proposals from the second half of the 20th Century, establishing the role of structural matrixes in to cities' morphological redefinition.

ARCHIGRAM: ***Walking Cities***, 1964; ***Plug-in-City***, 1964-66; ***Instant City***, 1965
The group of architects that converge into this designation – ARCHIGRAM (Warren Chalk, Peter Cook, Dennis Crompton, David Greene, Ron Herron, Michael Weber) – celebrated, in their urban proposals, new technological possibilities and devices, which took the best of industrial processes and its efficiency through mass scientific/rational logics of production. Nevertheless this purpose, Benévolo (1994, p.995) argues that the group's experimental urban projects tries to catch up with the increasing technological development that extends in different directions and in rapid way. On the other hand, ARCHIGRAM's projects relay on the revision of social and cultural relations, where consumption, fun and nomadic dynamics were merge within a hypothetic kinetic society that was supposed to be ready to deal with continuous amounts of fluxes and mobility – always moving from somewhere to elsewhere. The fluidity and the impermanent character of most of ARCHIGRAM's utopias (Walking Cities Plug-in-City, Computer City, and Underwater City among others) respond to ideas related to city interchange, indeterminacy, informality, systems, and dissolution of buildings, as well as:

> *'viagens no espaço e à aterragem lunar, à subcultura* (...)*, à ficção científica e às novas tecnologias dos anos 60 e 70. As suas referências (...) vieram de arquitetos/artistas como Buckminster Fuller, Bruno Taut ou Friedrich Kiesler.* (...) *O pluralismo do vocabulário arquitetónico,* (...) *incluí colagens de imagens publicitárias do mundo dos bens de consumo, de conglomerados de cidades reminiscentes de naves espaciais, ou desenhos metafóricos sobre robótica ou paisagens urbanas orgânicas'* (Jordão and Crompton, 2012, p.4)

Sadler (2005, p.61) highlights that the lack of sentimentality for the structural and symbolic permanence of architecture was the radical strand in ARCHIGRAM's thinking. He also refers that ARCHIGRAM point out to the fluidity of individual perception: *"Situation Change, as spectator changes – the moving eyes – sees, an*

environment and situation related to individual perception, mood, purpose, direction, and the place of the individual in the environment" (p.69). ARCHIGRAM's locative legacy to cities' structural matrix relays on the importance of interfaces and its (in)constant connectivity, and not so on coherent construction of urban fabrics and its relations between typologies.

Yona Friedman: ***Paris Spatial****,* 1959; ***Bridge City****,* 1963; ***Space City****,* 1964;
Gamburg and Thomas (2010, p.46-47) refers that Friedman's proposed vast megastructures that facilitated the abandonment of the ground plane by a highly mobile population alternately termed the "mobile society". Friedman describes his concept emphasizing that what is crucial to the spatial city is something call "spatial infrastructure": a multi-story space-frame-lattice that is supported by pillars at widely spaced intervals. This infrastructure forms the fixed parts of the city. The mobile part consists of walls, foundation slabs, and partitions that make it possible to tailor space to individual needs. Friedman pointed out that the building is essentially mobile. The type of use desired by the consumer or by a group must be possible and feasible (Feuerstein, 2008, p.279).

Friedman's spatial proposals were set on a basic structure with a totally flexible infrastructure, planned in a unified way; within the secondary structure could be modified completely individually according to tenant's wishes. Friedman explores a new sense of space, a new three-dimensionality. The upper level of the spatial grid was prepared to apartments. The middle layer was supposed to be occupied with public institutions and business. The lowest level was reserved to green spaces and overall circulation of the inhabitants. Going back to Feuerstein (2008, p.281), it is said that for Friedman architecture has a very important societal component. 'He pleads for broad participation: "The future user himself learns an interpersonal language. This language shows him what consequences he can expect from his project. He will therefore be in a position to plan for himself, without recourse to an expert"'.

As stated by Friedman (2006, p.48), the most important impulses in 20th Century architecture are space-frame structures and geometrical and emotional order. He

goes on saying that the social context of our epoch is characterised by mass culture where each person is looking to emphasise his own personal difference – Friedman called it "mass-individualisation". Friedman also adds that:

> *'Unifying the concept of space-frame structures (industrialization) and that of Merzbau (extreme emotional individualism) seemed to me the right answer to the social context. (...) Since a space-frame structure is a "span-over" structure, ground level under it can remain free for public use, such as pedestrian and vehicular traffic, green space, etc. (...) This is the essential of my "ville spatiale" proposal, the "socialisation" of space frame structures. (...) according to this proposal, the real architect and the real urban planner is the individual inhabitant, the "user" of the city. The proposal makes it possible for him to implement the trial-and-error method without security risks and without involving financial loss. Trial-and-error could very possibly be the way to architectural innovation'.*

Friedman considered that *"ville spatiale"* wasn't a formal proposal but a concept. "Spatial city" wasn't a "frozen form" but an "instant" image which arises out of a long and indefinite process: 'Only an instant later, this instant image would already be different' (2006, p.56). Friedman's legacy to today's urban condition is a significant reference to how to approach large scale urban spaces self-organized with micro-strategies set by inhabitants in their everyday life, in complex urban territories that one can find in Africa, Asia, and Latin America, for example.
According to Beall and Fox (2009, p.119):

> '*In the 1950s and 1960s, urban poverty was largely perceived as a temporary phenomenon – a product of the disruptive process of industrial transition. It was generally believed that the urban poor would eventually be absorbed into formal labour markets. Urban development policies focused primarily on investments in infrastructure and housing for the formal workforce and their families. By the 1970s, however, it became clear that urban labour markets were failing to keep pace with urban growth, evident from expanding slums and urban informal economies. The*

> *discourse of international development began to shift towards "basic needs", with increasing attention being paid to such issues as access to primary healthcare, education and other essential services (...)'.*

In many urban spaces of today's global cities, characterized by fragmentation, enclaves, ghettos, precarious housing conditions, lack of urban services, fragile infrastructures, social segregation, cultural conflicts, economic asymmetries and formal employment deficits, even the referred "basic needs" are difficult to accomplish. So, often are adopted palliative actions that aims to minimize huge constrain citizens has to deal with in their everyday life. The scales of the problems gain such proportions that regular and formal urban strategies are unable to produce effects on this type of interrelated urban realities, such as slums, *bidonvilles*, *caniço*, *musseques*, *favelas*, *barrios*, among others definitions.

Carl Pruscha: ***The Linear Global City***, 1962-64

In the 1960s, Pruscha foresaw the total urbanization of the Earth, saying that the world's population is still growing, 'and as it grows cities swell to become monstrous conglomerations' (Feuerstein, 2008, p.363). About cities, Pruscha considered that they should form a compact agglomeration and constitute a dynamic field of interrelated forces, characterized by very dense high-rise landscapes. Another very important characteristic about this proposal is that the 'famous concept of "networking" has been given a completely new meaning here: a traffic network does not link just individual points and places. Rather, the global city becomes a gigantic network that envelops the entire globe' (p.363).

Wolf Dieter Prix: ***The City in Space***, 1966

Taking as reference the work of ARCHIGRAM (Plug-in City and Clip-on System), Prix considered that cities are now a complicated system of horizontal and vertical planes that primarily form the strands of communication (Feuerstein, 2008, p.348). Prix explains that the city is a 'pulsating volume in which a unit – a neighbourhood with central facilities – is repeated in variable ways. Urban structural is spatial. The city has a spiritual and physical centre that determines the significance of the city: culture, politics, commerce, industry' (Feuerstein,

2008, p.348). City in Space explores ideas as monorail transportation, interfaces to different modes of transportation, which, on the other hand, converge to a transit centre. One can verify a strong commitment to achieve an overall structure that combine in an efficiently way residential blocks, vertical traffic, express elevators, underground tube, ramps, among other mobility devices. One of the main ideas that it is possible to reframe in today cities' structural matrix is that – as Prix said – 'the city has stopped being an additive collection of houses' (p.348).

Engelbert Zobl, Helmut Schulitz, and Dale Dashiell: ***The Caravan City***, 1967

The aim of this urban experiment, according to the authors, was to reach a maximum of flexibility and mobility for an urban agglomeration (Feuerstein, 2008, p.319). According to Feuerstein (2008), they also highlighted that:

> *'Our modules are easy to move and adapt as a house trailer and can be bought and equipped just as individually. (...) What we're interested in is a self-regulating structure, as it were, an undefined agglomeration of urban components that not only satisfies the needs of modern consumers but also be adapted to the requirements of an unforeseeable future'*

Within the framework of this proposal, it is relevant to verify a trend toward a society focused on personal experiences (which imply locative logics). Recreational facilities are prioritized over residential space (Feuerstein, 2008, p.320).

Fritz Haller: ***The Total City – integral urban***, 1968

This enormous grid city was predicted to embrace six million inhabitants and was structured within "prevailing orders", moving walkways, automated freeways, countless high-rises composing twenty four residential floors and one thousand and two hundred residential units. The automated freeways consist of electronically steered four person electric vehicles. 'These automated vehicles run on a multi-story system of traffic lanes' (Feuerstein, 2008, p.298).

Lebbeus Woods: Centricity, 1986; ***The Cyclical Cities***, 1987; and ***Aeon***, 1981-84

As mentioned by Feuerstein (2008, p.328), Woods thought that: 'New patterns of urban forms and city life develop from concepts of time and space, which we

consider to be a space-time continuum'. His proposals explored biomechanical and biodynamic devices as towers with 'quadropolar and deformed quadropolar forms that correspond to the centrisymmetrical forms (circles) and eccentrisymmetrical forms (ellipses)' (p.328). Cyclical City was based on architecture of dynamism, 'of geo-, bio-, mechano-dynamism (...)'. It is the combination of dual metric measurements, of the geometry, biometry, and mechanometry of the space complex (p.328). The prolific hybridization of concepts developed by Woods within his experimental drawings results from merging space, time and form in to an intricate framework set between reality, fiction, models, and processes.

BELGIAN TEAM KINSHASA: ***The Imaginary City****,* 2000

Within this utopia, the authors put a very important group of questions: 'Can a city exist without architecture consisting of built houses? How modern is our modernity? How universal can urban planning be? Can urbanity be incorporeal?' (Feuerstein, 2008, p.336). A different city concept was developed: the most important infrastructural unit is the human body. It is the only structure, as it were, constantly in process of being built and perfected. It is at the same time a marketplace, street, garage, and church. That's the "imaginative city" (p.336). The authors also allege that urban spaces unfold and design themselves. Trough this reference, one can think about the importance of embodied spaces in the organization of mass urban territories. Space self-production induces in urban forms a significant permanent changing character, adjustment and diversity of urban uses and appropriations that refocus attention on urban forms not from typological devices, but rather on everyday topological action's of its inhabitants.

Closing arguments

Koolhaas and Mau (1995) says that beyond a certain scale, architecture acquires the properties of 'Bigness':

> *'Bigness instigates the "regime of complexity" (...). Such a mass can no longer be controlled by a single architectural gesture, or even by any combination of architectural gestures. This impossibility triggers the autonomy of its parts, but that is not the same as fragmentation: the parts*

remain committed to the whole (...). Bigness transforms the city from a summation of certainties into an accumulation of mysteries' (p.501).

These words synthesises the scope of paper's conclusions: The legacy of large scale structures was overcome by contemporary non infra-structured and extensive urban territories, characterized by uncertainty and unpredictable processes of transformation. Adopting once again Koolhaas and Mau (1995), one can say – also based on the panoramic outlook establish during the paper – that 'Europeans had surpassed the threat of Bigness by theorizing it beyond the point of application. Their contribution had been the "gift" of the megastructure, a kind of all-embracing technical support (...): a very safe Bigness, its true implications excluding implementation' (p.504). From this point of view, it is possible to say that cities' experimental structural matrixes, developed mainly during the third quarter of the 20th Century, were highly optimistic in conceptual terms, but inefficient in terms of its real implementation – even if they had explored more processes and systems, instead of deterministic forms. Global cities' structures evolve into prolific and increasing layouts of flows, interchange, connectivity and a demand for mobility – a process that contributed to generate renewed urban (in)formal logics. One can realise that this issues were already present in most of the case-studies referred in previous parts of the paper, but they were unsuccessful in the task to give new forms to the dissolution of compact, coherent and homogeneous urban fabrics. Despite the effort to orchestrate the predictable apparent "chaos" and disorder set to urban territories by growing levels of entropy, to understand today's cities one ought to read them not as a linear text but as a diffuse, splintering and heterogeneous urban structures, based on multiplicity, diversity and multi layered/scaled (self)dynamics.

More important than to define homogeneous quality and physical attributes to urban spaces, one ought to pay attention to the intricate relation between actors, networks and urban forms configurations; but also to know how to establish the intervention framework within what really characterises megacities' different enclaves, which requires a flexible type of city structure with capacity to become a sort of *linking morphology* between its fragments – through collaborative micro-

multiple multiscalar urbanism engaged with macro-planning. This approach infers a locative perspective that overlaps current notions of perennial and typological construction of the city, thereby gaining prominence incremental topological and relational production of urban spaces. By adopting Ogbu (2010) words, it's possible to justify the locative dimension attached to urban forms: 'cross disciplinary approach that allowed the innovative urban scheme to break free from a meta narrative and instead consist of multiple narratives that together advanced the political, economic, and social opportunities of the individuals that converge' on its space daily.

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VÄLLINGBY
Sweden's first satellite town

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Abstract

The first Swedish satellite town was built in Vällingby outside Stockholm. Planning commenced in the early 1950s and the town was inaugurated in 1954. The layout plan was drawn by City Planning Director Sven Markelius, an active member of the CIAM and one of the architects behind the UN's New York headquarters. In Vällingby, all the characteristics of a city – jobs, housing and commerce – were to be represented. Inspiration was drawn from Lewis Mumford's The Culture of Cities, translated to Swedish in 1942, as well as Patrick Abercrombie's 1944 Greater London Plan. Vällingby was envisioned as a neighbourhood unit, consisting of smaller housing areas - each containing a corner shop, kindergarten and playground - organised around a larger town centre offering more sophisticated commercial, cultural and social services.

Neighbourhood planning in Sweden came to include a dimension not often found in other countries – the ambition to increase citizens' democratic awareness. During the war, a group of influential people had convened to discuss the attraction of Nazism and Fascism, and what methods could be used to make people more democratically aware. Their ideas came to exert great influence on post-war Swedish city planning. By means of good planning, citizens would be encouraged to relate to bigger primary groups and thereby take an active democratic responsibility. By offering equal housing to everybody, Vällingby was also intended to become a classless community, but despite efforts, the gap between blue-collar and white-collar workers was never fully bridged.

Vällingby was a largely successful project. The town generated jobs consistent with the numbers that had been projected, but establishment was slow and by the early 1960s only a quarter of the inhabitants were working in the neighbourhood. Vällingby became the archetype for Swedish post-war city planning. The area garnered international attention and was visited by among others Le Corbusier.

Keywords: ABC-town, Satellite town, Neibourhood unit, Vällingby, Sweden

Background

Vällingby, located 15 km northwest away from central Stockholm, was Sweden's first satellite town. It was planned in the early 1950s to a capacity of 23 000 people and inaugurated in 1954. Vällingby diverged strongly from what had previously been built in the Stockholm suburban area. (Sax, 1998) First, some background information will be given to better understand the significance of Vällingby.

In the 1930s and 1940s, Stockholm began expanding rapidly beyond the former city border. Local politicians, anticipating the development, had already in the first decades of the 20th century bought large areas of land from adjacent municipalities. In 1913, the city's boundaries was extended to include Bränn-kyrka to the south, and again in 1916, this time to the west, when Bromma was incorporated into Stockholm. In 1949 was Spånga, the location of future Vällingby, officially made part of Stockholm. (Johansson, 1987)

Suburban areas around Stockholm were during the 1930s and 1940s dominated by three-story lamellar houses and groups of single-family detached houses. These areas soon received criticism for being single-purpose housing areas with no access to jobs or social and commercial services. To change this situation, city planners initially concentrated on incorporating the missing social and commercial services in new areas; an example of this is Årsta in Stockholm from 1951. (Sidenbladh, 1981) Inspiration was drawn from, among other Lewis Mumford's *The Culture of Cities*, translated to Swedish in 1942, Patrick Abercrombie's Greater London Plan and a text about contemporary English city planning printed in 1945 (Danneskiold-Samsøe 1945). Planning proceeded according to Clarence A. Perry's idea of the 'neighbourhood unit', consisting of a number of housing areas, each with a corner shop, kindergarten and playground, grouped around a larger town centre, offering more sophisticated commercial, cultural and social services.

Neighbourhood Planning was recognised as a successful concept and became the foundation for Swedish city planning until the 1970s. (Vikstrand, 2005) However, one important aspect was still missing in most suburbs – jobs. This prompted

the introduction of the so-called ABC-town, where A stands for *arbete* (jobs), B for *bostad* (housing) and C for *centrum* (city centre). The ambition was to construct satellite towns of an independent character that nevertheless had a strong connection to their mother cities. The first and most well-known Swedish ABC-town was the abovementioned Vällingby. (Pass, 1969)

Figure 1. Aerial view over Vällingby. The town centre, Vällingby centrum, is accentuated in the landscape by a ring of high tower blocks. (Photo: Oscar Bladh, 1955)

Description of the area

The master plan for Vällingby was drawn by Stockholm City Planning Director Sven Markelius. The plan for the *centrum* was drawn by architects Sven Backström and Leif Reinius, who also drew most public buildings. Vällingby got a much higher degree of exploitation than earlier suburbs. (Sax, 1998) The town was layed out around a town centre, Vällingby centrum, consisting of around 40 shops, two department stores and a number of two- and three-story office buildings, all grouped around a central square. In the *centrum* was also located a cinema, a library, a community centre and various public services such as a

hospital and a dentist. Later, a church was built. Below the square lay the metro station. Around the town centre, fifteen nine- to twelve-story tower blocks were built. The height of the buildings marked a clear deviation from the city's earlier policy to build only two- to three-story lamellar houses and single-family dwellings in the suburbs. Markelius and his co-workers actually wanted even higher houses, but this was deemed impossible as Vällingby lay too close to Stockholm's only international airport at the time, Bromma. Markelius had long been a proponent for tall buildings. As early as the 1920s he had submitted a plan including twenty-story houses to a redevelopment contest for Gärdet in central Stockholm. (Sax, 1998)

Three-story houses in different formations were placed within a 500m radius from Vällingby centrum. To the south were placed the housing areas Grimsta and Råcksta, where the latter had its own metro station. Here, housing was planned mostly in the form of three-story lamellar houses, interspersed with a few taller tower blocks. North of the *centrum*, row houses and so-called *egnahemshus* were placed. (Sax, 1998) These were small, single-family detached houses of a uniform design. On the expense of the City Council, future house owners were allowed to borrow up to 90% of the construction cost of these houses. The additional 10% could be paid in cash or in labour during the construction of the house. The latter alternative meant that owning a house became achievable even for low-income families. This way of financing construction was originally developed to prevent mass emigration of the rural population, but was later used mostly in suburbs like Vällingby. (Vikstrand, 2005).

During the course of the 1950s, around 8 000 dwellings were built in Vällingby, Råcksta and Grimsta. 92% of these were located in multi-family houses. The majority of flats in these houses were for rent and had been constructed by the municipal housing company Svenska bostäder. The rest had been constructed by, among others, the cooperative companies HSB and Riksbyggen. (Sax, 1998)

In 1952, Stockholm City Council issued two brochures about Vällingby: one directed toward potential inhabitants and the other toward companies who might

wish to relocate their offices to the area. In late October and early November, a grand exhibition was held in Vällingby, for which another brochure was made. Much can be learnt about the intentions behind Vällingby from these texts.

Vällingby and the classless society

In the late 1920s, Per Albin Hansson, leader of the Social Democrats, had begun using the term 'folkhemmet' (the people's home) as a rhetorical device. Sweden was to become like a home for the entire population, characterised by harmony and democracy. The term later became strongly associated with house building during the 1940s and 1950s where the ambition was to offer equal, high-quality housing for everybody. (Rudberg, 1998) In 1933, the government commissioned an investigation with the aim to scrutinise the housing situation and produce guidelines for future housing policies. The committee published reports in 1935, 1945 and 1946, which served as the foundation for post-war housing policy and to some extent are still in use. The first report targeted lack of living space. By the mid-1930s, 30% of all children aged 15 and under lived in households with more than two people per room, kitchen included. As a solution, the committee's 1935 report proposed offering generous loans to companies interested in building houses for low-wage families with many children. To be eligible for a *barnrikehus*, as these houses came to be called, families had to have a level of living space lower than to that of a family of four sharing a flat of one room plus kitchen. Additionally, inhabitants of the *barnrikehus* were given a housing grant. However, the *barnrikehus* eventually acquired a bad reputation, and the housing committee decided to revise their recommendation. In the final report, the concept of category housing was dropped entirely and sufficient housing was to be provided by means of general housing loans for all housing construction as well as housing grants for low-income families regardless of were they lived. In this way, equal and high-quality housing was to be guaranteed for everybody. (Bostadssociala utredningen, 1946) Sweden did, in other words, choose a radically different path from many other European countries, e.g. England and France, where social housing was the norm, which meant deliberately creating a segregated community. (Rudberg, 1998)

Another of the committee's goals was to abolish lack of living space within 15 years. The standard of living had, however, increased during the decade the investigation lasted, and now families with more than two people per room, *kitchen not included*, were considered to formally suffer from a lack of living space. (Rudberg, 1989) A large amount of families at this time had two children, which led to flats of two rooms and one kitchen becoming the standard. This strategy is evident in Vällingby where 57% of all flats consist of two rooms and a kitchen. Only 15% had four or more rooms. Most row houses and *egnahem* had three or four rooms distributed on an area of 70–80 m². (Sax, 1998)

To achieve a classless society with equal housing for everybody, it was decided that municipal councils should be responsible for the provision of housing and that rents should be regulated to the same level regardless of who owned the house. (Vikstrand, 2005)

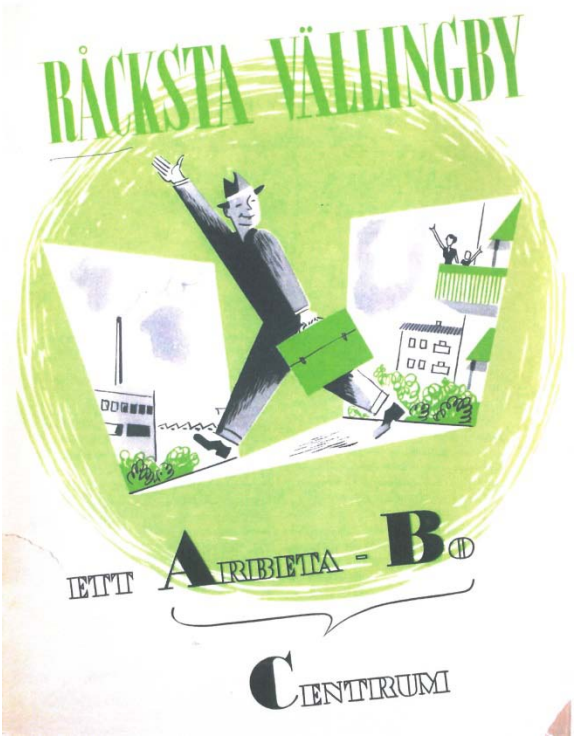

Figure 2. The brochure Råcksta Vällingby. Ett Arbeta – Bo Centrum (A work and living centre) shows a happy man on his way form home to work. (Stockholm council, 1952)

The perhaps strongest indication of the Social Democratic government's ambition to build a classless society was that Prime Minister Tage Erlander and his family at this time lived in a modest flat of three rooms and a kitchen in Alvik just outside the centre of Stockholm. Obviously, they did not employ any servants. (Ruin, 1986).

Was this ambition also reflected in Vällingby, and, if so, was it achieved? According to *Råcksta Vällingby. Ett arbeta – bo centrum* (1952), rents were to be kept at a minimum by means of long-term planning and rational construction methods. In this regard, no difference was made between multi-family and single-family houses. Single-family houses were either detached houses or row houses. One potentially segregating element, however, was the difference between *egnahem* and other single-family houses, which were called *tjänstemannavillor* or public servants' houses. However, these were only marginally bigger than the *egnahem*. Despite the intention to build a classless community in Vällingby, some areas came to be considered more prestigious than others. For example, the high-rise buildings around the *centrum* were considered to be more attractive than similar buildings in Råcksta, while the row houses by the Atlantis Area and Långseleringen came to be known as 'gräddhyllorna' ('cream shelves,' a modest equilant to the English Millionaire's Row). (Sax, 1998)

The democratic aspect

Neighbourhood planning in Sweden acquired an aspect not often found in other countries – the ambition to increase citizens' democratic awareness. During the years 1939–1943, a number of leading architects and academics gathered to discuss the problems of democracy. World War II was raging and the question was how totalitarian ideologies had managed to win such a large following in the European nations. That blatantly antihuman ideologies such as Nazism and Fascism had been able to gain such support believed to depend on ideological limitations in democracy. It was very clear what democracy fought against –but what did it fight for?

The group consisted of, among others, Torgny T:son Segerstedt, later the first Swedish professor of sociology, Gregor Paulsson, professor of art history at Uppsala University and leading debater for good modernist architecture and design and Brita Åkerman, who in the beginning of the 1940s carried out the first sociological housing habit survey and was active in both government agencies and the Fredrika Bremer Association, one of the time's most important organisations for women. The group also included four architects. Uno Åhrén was part of the committee for the housing social investigation and in 1947 became Sweden's first professor of urban construction, Jöran Curman was also involved with the work of the housing social investigation and would later draw one of the row house areas in Vällingby, Eskil Sundahl was chief architect at the Cooperative Union's Architects' and Engineers' Bureau and Helge Zimdahl became a professor at the Gothenburg Institute of Technology, Chalmer's, and drew many educational buildings across the country. All of the abovementioned people were active debaters important for Swedish urban development during large parts of the 20th century. (Arkitekter verksamma i Sverige, www.kulturnav.org) In other words, it was a very influential group that had convened to discuss the problems facing democracy.

In 1944, the Cooperative Union published *Inför framtidens demokrati* (*In wait for the democracy of the future*) with contents inspired by the group's discussions. Curiously, Sven Markelius was not part of the group. He knew most of the other members and several of them had been his co-authors on a 1931 propaganda text for modernist architecture, *Acceptera* (*Accept*). Uno Åhrén and Sven Markelius were also the first Swedish architects to become members of the CIAM and had collaborated on several occasions. Markelius was at the time of the discussions head of the investigations department at the Royal Buildings Administration in Stockholm, meaning he was in the city were the discussions were held. (Rudberg, 1989) A plausible explanation for his absence is that he simply did not have the time to engage in this forum, but he was certainly informed of what was going on.

In wait for the democracy of the future came to exert a tremendous influence on Swedish post-war urban planning. So what questions did the book address? In

1921, universal suffrage heralded the final and total breakthrough for Swedish democracy. There was, in other words, a formal democracy in Sweden, but the members of the discussion group believed that a real democracy, comprising people with the will and capacity to govern the country, was lacking. The main reason for this passivity could be traced to industrialisation and the subsequent urbanisation. Historically, the majority of the Swedish population had lived on the countryside where they had formed large primary groups. The characteristics of a primary group are a sense of 'us', an immediacy in the relation between people and that it is formative for each individual's values and worldview. The family is an example of a primary group, but an entire village or parish also fits the description. During urbanisation, many young people moved away from family and friends. The primary group therefore became much smaller and in the end consisted only of the core family. (Segerstedt, 1944)

Segerstedt believed the inhabitants of a city were part of many different groups, but these were often of a superficial nature and there was no sense of 'us', security or home. This insecurity and sense of homelessness created a need for a strong leader. This was, according to Segerstedt, the explanation for the success of Nazism and Fascism. (Segerstedt, 1944) How primary groups bigger than the individual family could be created was discussed by Jöran Curman and Helge Zimdahl in the final article in *In wait for the democracy of the future*. Their solution is in many ways similar to English neighbourhood planning. Housing was to be organised in units fitting around 1000 people witch all had access to a kindergarten and pre-school, but the authors also believed that there should be libraries, reading rooms and community centres in the smallest group units. Further, they emphasised the need for youth clubs. The units were to be grouped around a larger centre with shops, administrative buildings, cultural and social services and churches, etc. The authors suggested that a large part of housework should be done centrally. A central kitchen would supply food and do the washing-up, common laundry facilities and bathhouses were to be built and cleaning assistance offered to the households. An active democratic engagement was to be encouraged by making all inhabitants responsible for these common functions. In other words, it was not the state or municipal council that was

responsible for these services but the inhabitants themselves, which was thought to facilitate the creation of new, large primary groups. (Curman and Zimdahl, 1944)

In wait for the democracy of the future became an important source of inspiration for post-war urban planners. The concept of letting inhabitants themselves take care of many societal functions may never have been realised, but the basic idea of creating opportunities for vivid social interacting in order to promote a greater sense of solidarity and belonging characterised urban planning in Sweden during the 1940s and 1950s.

Can traces of these ideas also be found in Vällingby? Pre-schools and kindergartens were included in the housing units, but libraries and larger community centres were placed at the centre of the area, where a large square was also constructed, which was considered important due to the possibility for demonstrations. Vällingby centrum also became home for Sweden's first independent youth club. (Sax, 1998) It was meant to act as a complement to the home and a replacement for the streets, where young people could gather to pursue their hobbies and meet friends. There is a description of the youth club in *Råcksta Vällingby. Ett arbeta – bo centrum*. The same thoughts that were outlined in *In wait for the future of democracy* are readily apparent here as well. The idea was that activities in the youth club would yield valuable experience that could be applied to a similar - democratically informed - club life in adulthood. The rationale behind the youth club was described thus: *'Here the club life of youth can find space to establish itself, grow and eventually bloom to the benefit not only for the young people themselves, but for society as such.'* (Råcksta Vällingby. Ett arbeta – bo centrum, 1952, s. 13) For the clubs and societies of the grown-ups, the community centre Trappan was built. At the inauguration in 1956 there were already 30 different societies of various kinds that were now given a common meeting place. Club life has remained stable throughout the years. When Trappan was scheduled to cease its activities in the 1990s, a fair with over a hundred Vällingby-based societies was organised to save the community centre. (Sax, 1998) Trappan is currently closed for renovation. Zimdahl and Curman suggested that central baths and laundry

facilities be constructed for the benefit of the households. A bathhouse was built in Vällingby during the 1960s and 'Laundromat'-like establishments sprung up in several places. These facilities also made it easier for married women to make a carreer. (Sax, 1998)

In wait for the democracy of the future suggests a feeling of homelessness as one of the explanations for the anti-democratic developments in Europe at the time. Vällingby was built during a period of four years. All inhabitants, in other words, were newcomers. It is therefore interesting to note that the housing exhibition arranged in Vällingby in 1952 by Stockholm's City Council was not only about the new houses. Three different tracks could be followed during the exhibition. The main track went between different example flats and exhibition halls. The second track focused on the cultural landscape with archaeological sites such as graves and rune stones as well as the 17th century Hässelby Castle with its adjoining gardens. Even if Vällingby was completely new, there was a wish to provide the future inhabitants with a sense of continuity by showing that the area had been inhabited and cultivated for generations. The third track focused on the natural landscape with the Grimsta Forest and the shores of Lake Mälaren. (En orientering i framtidsstaden. 26 oktober – 9 november. Vällingby, 1952) As most Swedes have a very close relationship with nature, this track was important in order to show that Vällingby was a place where one could make oneself at home.

Vällingby and labour

The planners of Vällingby had high ambitions for the number of jobs that would be available in the area. The goal was that half of Vällingby's workinforce should have a job close to their homes. A not insignificant part of jobs were planned for the *centrum* area – in shops, social and cultural institutions and offices. The rest were to be found in the outskirts of Vällingby, in Grimsta and Johanneslund. To attract businesses and ensure that the jobs went to the inhabitants of Vällingby, the City Council created a separate housing queue for employees of companies relocating to Vällingby. A large part of dwellings constructed in Sweden at this

time consisted of rentable flats built by municipal housing companies. This was also the case in Vällingby. The applicant entered the queue and was given a dwelling of a size considered appropriate for his or hers family. A single person, for example, could not be given a flat larger than one room and a kitchen. That a special queue was created for employees of these companies incited some controversy as it was a digression from the democratic principle that only the queue time should decide the distribution of dwellings. (Sax, 1998)

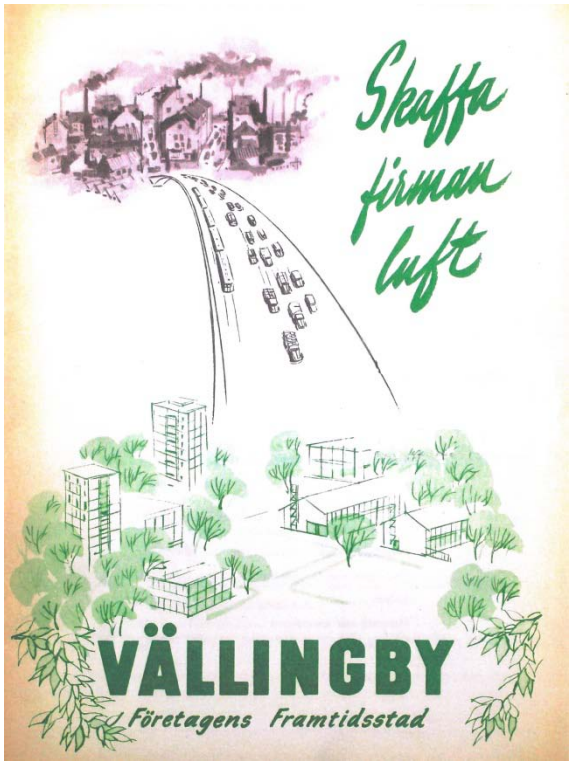

Figure 3. The brochure Skaffa firman luft. Vällingby. Företagens framtidsstad. (Get the company some air. Vällingby. The future town for companies) shows the way from a dirty old town to a green New Town. (Stockholm council, 1952)

The brochure *Skaffa firman luft* (1952) was directed toward companies which might be interested in relocating to or expanding in Vällingby. The area was presented and the benefits of relocation were described. One of these benefits was that married women, hesitant to commuting, now would have the opportunity to work close to their homes. In the brochure *Råcksta Vällingby. Ett arbeta – bo centrum* (1952), targeted toward potential inhabitants, the City

Council stressed that kindergartens would be built so that married women would get the opportunity to work.

Initially, businesses were slow to establish themselves in Vällingby. Both shop owners and other companies were sceptical to running a business so far from central Stockholm. The Stockholm City Council, however, kickstarted the process by moving the head office of its housing company Svenska bostäder to Vällingby. Later, the state also helped by moving state-owned energy company Vattenfall to Råcksta. Eventually, more companies established themselves in the area, e.g. IBM. In the middle of the 1960s there were around 14 000 jobs in Vällingby, corresponding to little more than half the able population. The amount of jobs were in other words higher than had been projected. On the other hand, the goal that half the population should find employment locally was not reached and only a quarter of Vällingbys inhabitants worked in the area. This was because many businesses were established several years after Vällingby was completed. Consequently, many employees of these companies had trouble finding a dwelling in Vällingby, despite the special housing queue. The ambition of local employment was therefore not realised in terms of the entire population, but the amount of women working in the area was large – exactly how large is impossible to say as part-time labour is not included in statistics from the 1950s. (Sax, 1998)

Vällingby – a successful satellite town?

At the time of its construction, Vällingby attracted a large amount of attention both domestically and internationally. The Stockholm City Council was largely successful in proving its concept of the ABC-town. Vällingby therefore became the archetype for a Swedish suburb during the post-war era and had several follow-ups, including Farsta and Skärholmen south of Stockholm. The area became so renowned that special guides, 'Miss Vällingby,' had to be hired to account for the large stream of tourists, a lot of them from other countries. Vällingby also attracted many architects, for example Le Corbusier. Ulrika Sax points out that the CEO of Svenska bostäder, Albert Aronsson, was especially

important to Vällingby's successful marketing. Aronsson was a journalist at heart and knew what made a good headline. (Sax, 1998) However, the responsibility for most of Vällingby's international attention probably lies with Sven Markelius. Markelius had many international contacts, e.g. through his membership in the CIAM. He had also been the representative of the Nordic countries during the construction of the UN's New York headquarters. (Rudberg, 1989) Le Corbusier's visit to Vällingby is likely Markelius's sole responsibility.

During the 1950s and 1960s, Vällingby centrum attracted customers from far and wide. The *centrum* was so popular that it went through an expansion in the 1960s. However, its popularity declined toward the end of the 20th century, partly because of competition from external megamalls. Between 2004 and 2008, the *centrum* was renovated and expanded with a shopping mall, K:fem, drawn by Gert Wingårdh. In 2008, K:fem was elected *World's best shopping building* at the World Architecture Festival in Barcelona. (Kihlberg, 2012) But despite the award, the building did not give the economic boost that Vällingby had hoped for.

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CHANDIGARH. THE CITY BEAUTIFUL.

One of the greatest examples for modern planning.

Dr. Sunita Vimal

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Abstract

The aim of this research is to understand the present scenario of Chandigarh and its future growth into a metropolitan city. Many debates are recently going on in Chandigarh itself, within India and internationally.
We are well aware that the purpose of planning Chandigarh was due to the need to built a new capital city for Punjab after the partition. Nehru wanted to create a symbol of the Independent India with the concept of modern city planning. Many international and national professionals formed a design team which was responsible to build the new capital city.
The city that was initially planned for approximately 500,000 people, for exclusive administrative purpose. Chandigarh has been developed in different phases from its conceptualisation. The major features of the city are the sectors which are totally independent in nature. The core of the city centre is located in sector 17 where people enjoy their evenings and weekends. The Leisure valley is a long stripe of gardens which crosses the city from north to south and gives Chandigarh a direct connection to nature.
The city population is of 1,025,682 inhabitants and there is hardly any space for further extensions because the city has strict planning bye laws. Any change of skyline and growth of the city causes debates between town planners, urban planners, architects and the government.
India and its population is growing, its metro cities are developing very fast. High-tech infrastructure is under planning and construction process. Chandigarh is facing a huge problem of traffic congestion because of increasing number of cars. There are many proposals to solve the growing problems of the city due to increase in population and urbanisation of the city, but due to strict bye laws and scarcity of land development of the city is passing in a great difficult phase.

Keywords: Chandigarh, metro city, population, urbanization, development and growth of the city

Chandigarh[1], known under the name *city beautiful,* is one of the most interesting phenomena of urban planning all around the world. Many important people, under them especially architects, urban and town planner, historians and researchers have visited during the last 6 decades the city and most of them have written interesting research papers, books in various fields like architecture, urban and town planning, landscaping ecc. Many documents are available in various research institutes all around the world. We are well aware that the purpose of planning Chandigarh was due to the need to built a new capital city for Punjab after the partition. Nehru wanted to create a symbol of the Independent India with the concept of modern city planning. But what is also interesting is that for Nehru, modernism did not mean a complete break with what was Indian. In April 1952, when work on Chandigarh had already begun, Nehru in a public rally observed, "*Our effort was to make a city in the Punjab in which we should benefit from the experience of architects and planners from other countries in the world and yet retain the character of an Indian city. Our attempt was that it should be Indian in spirit and yet it should have the best which other countries have developed*" (Nehu J.,1952, p.1). Many international and national professionals formed a design team which was responsible to build the new capital city.

The city that was initially planned for approximately 500,000 people, for exclusive administrative purpose. Chandigarh has been developed in different phases from its conceptualisation. The major features of the city are the sectors which are totally independent in nature. The core of the city centre is located in sector 17 where people enjoy their evenings and weekends. The Leisure valley is a long stripe of gardens which crosses the city from north to south and gives Chandigarh a direct connection to nature.

The creation of the city was in many important hands. When Nehru decided to built the city he firstly called an american architect, named Albert Mayer already known

[1] Chandigarh is located near the foothills of the Shivalik range of the Himalayas in Northwest India. Chandigarh means "Fort of Chandi (A Hindu Goddess)"

for his high architectural qualification and knowledge about the country, climate, culture and local materials . He was the creator of the first concept of Master Plan of the city and with his young collegue Matthew Nowicki they have coneptualised up to the detail of the neighbourhood planning of the city.Unfortunatly M. Nowicki died in a plan crash and Albert Mayer was mistirously cut out of the project, so the indian goverment had to call another architect who was on the international level to overtake the proect of the Master plan and all the buildings, which had to be built in the city. Very well known at that time was Le Corbusier, who was in a mature stage of his life when he was asked to overtake the project of Chandigarh. Actually he seemed to be not very interested but finally he decided to come to India, taking his cousin Pierre Jeanneret and two other experts (Edwin Maxwell Frey and Jane Drew), both specialised in tropical architecture (Evenson, 1966). Many books are published who give a detailed view at the historical background and founding of the city, but often they are incomplete or not up to reality (Bhaga, 2000). The city is known because of his international designers but very rarly we get to know that also indian architects old and young have been involved in the planning and costruction of the city.One of the most important indian architects today, named B.V. Doshi, played a very important role working in Le Corbusier's office in Paris before he was deciding to come back to India. He personally says, that he has been involved into the planning in several buildings of the Capital Complex (Doshi,1993).

The project has been devided into different parts, the Master Plan, the Capital Complex and the landscaping project (Leisure Valley) has been given to Le Corbusier and the rest of the building has been planned by Pierre Jeanneret and the two other experts (Edwin Maxwell, Frey and Jane Drew).

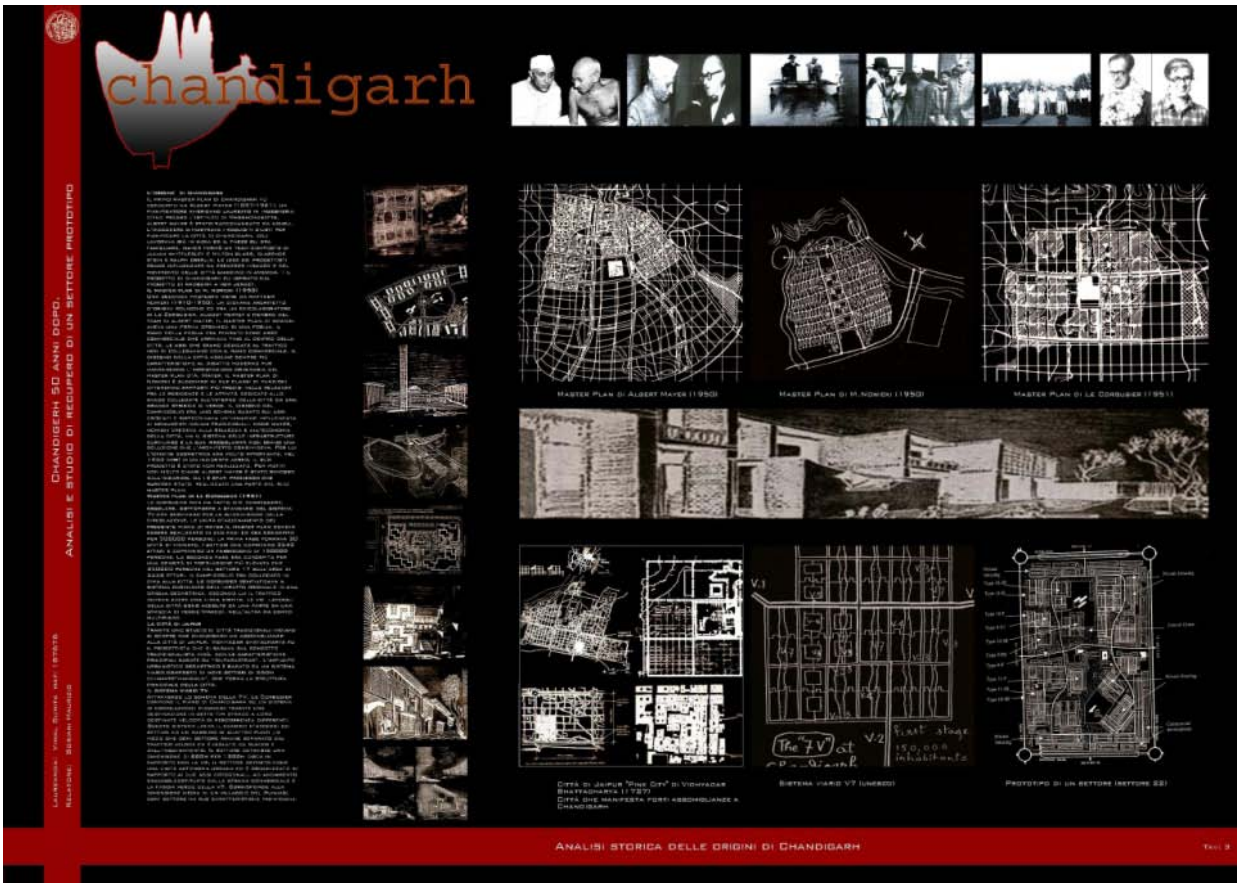

Figure 1. Chandigarh Historical background

Chandigarh serves as the capital of two states, Punjab and Haryana, and is a union territory of India. Today the city population is of 1,025,682 inhabitants and there is hardly any space for further extensions because the city has strict planning bye laws. The city is divided into 46 sectors, each including three-storey blocks of concrete apartments, shops and essential services. While each of the sectors is almost, if not quite, self-sufficient, Sector 17 is where the action is. This is the "heart" of the city, bustling with shops and offices and transformed over the decades into a properly colourful and eventful Indian city centre. But the city seems determined to adapt itself intelligently to new concerns without losing its special physical character. Chandigarh was an international effort to create a new kind of postcolonial city in India. Le Corbusier's major work was completed by 1955. Now,

new generations of Indian architects have taken the project on, most showing respect towards a remarkable design.

Any change of skyline and growth of the city causes debates between town planners, urban planners, architects and the government.

India and its population is growing, its metro cities are developing very fast. High-tech infrastructure is under planning and construction process. Chandigarh is facing a huge problem of traffic congestion because of increasing number of cars. There are many proposals to solve the growing problems of the city due to increase in population and urbanisation of the city, but due to strict bye laws and scarcity of land development of the city is passing in a great difficult phase.

Mohali and Panchkula are two satellite cities – Panchkula (Haryana) and Mohali (Punjab) which are growing in extension of the city of Chandigarh. Both cities are totally independent based on the same grid-iron plan like her mother town, subdivided into sectors and huge industries. New constructions in the core of city are hardly impossible, but in the industrial part of the city huge and multistorey buildings like malls and 5 star hotels are coming up. There are certain areas who are planned especially for these purposes like for example the area of IT Park.

The city is suffering of many important disturbances, for instance, the bad traffic congestion because of increasing number of cars. When Chandigarh has been built people where critising the huge size of the built roads and whole the adopted 7V[2] system.

[2] Sectors are linked by a network of streets called the 7Vs. The "Vs" are hierarchically organized routes according to the intensity of vehicular traffic they support. Thus, V1 and V2 are roads of special services , V3 are high-speed roads that cross the city, V4 lead to local equipment , V5 roads are neighbourhood , V6, home gateways , V7 the walkways and V8, added later cycle. Each sector, in 1200 to 800 m is linked to a high-speed track V2 and V3. It is crossed from east to west along a commercial street V4, which is connected to other adjacent areas and a neighbourhood V5 road from north to south. V7 walkways connect to the fringes of parks and green areas. Based on 4 main functions (live, work, move and keep body and spirit), the proposal makes an analogy to Le Corbusier. Chandigarh with the human body: the head is the Capitol (Sector 1), the heart the Central Area (Sector 17), the lungs were Placer Valley, parks and green areas, the brain, universities and schools, the circulatory system were 7Vs tract and digestive system, the industry.

Today Chandigarh is considered one of the richest and the most beautiful cities in India, it is a very good place to live in. People are having more than two cars per family and the population is increasing day by day.

One of the major projects to make the city more liveable and attractive is to introduce the metro or the BRTS[3] would be a perfect option for Chandigarh, especially since it has wide roads. Bogota & Curatiba are cities which are much larger than Chandigarh and have had amazing success with the BRTS.

"Having a metro isn't always the best option, especially for cities as small and well planned as Chandigarh.Chandigarh, seen as India's best planned city, will have a Metro of its own which will also link it to the adjoining sub-cities of Mohali and Panchkula. The decision to place the city on the Metro map has been given an "in principle" clearance by the Urban development ministry.The ministry has asked Punjab, Haryana and Chandigarh administrations to initiate work on preparing a detailed project report (DPR) for the mass rapid transport network at the earliest. "The required approvals going through on time, the underground and elevated Metro for Chandigarh and adjoining areas will materialize in about five years," urban development secretary M Ramachandran told TOI. The Metro might prove to be boon to the city. Not only will it boost its already high quality of life, it will help the city cater to an increase in population in the future without necessarily putting more pressure on the roads.

A Metro system will go a long way in helping maintain Chandigarh's orderly appearance while doing real estate prices no great harm either. Links to Mohali and Panchkula will also help ensure that the sub-cities develop and Chandigarh does not bear the burden of increased congestion in the next decade. To provide an impetus to public transport in the city, the UD secretary held a high-level meeting in

[3] Bus rapid transit (BRT, BRTS) is a bus-based mass transit system. A true BRT system generally has specialized design, services and infrastructure to improve system quality and remove the typical causes of delay.

Chandigarh on Saturday with the adviser to the Administrator of Chandigarh and chief secretaries of Punjab and Haryana. "(Singh, M.K. 2008).

The main motivation for the setting up of Chandigarh Metro is that the population of Chandigarh Urban Complex (CUC) has been growing at a rate of over 5% per year in the last decade. There has also been a phenomenal growth in the number of vehicles in this period and their rising use due to rising household incomes since Chandigarh has the highest per capita income in the country. Beside this, there has been a sharp rise in the population of the nearby towns which has put a lot of pressure on the public transport system. In the absence of adequate and quality mass transport system, people are using the personalised modes which is not only leading to congestion on road network but also increasing environmental pollution.Road network is enough for now but main travel corridors are beginning to become congested. Travel speeds are declining on the major roads which have limited scope of widening. This indicates the need for judicious use of the available road space. Thus there is need to optimise the available capacity by adopting transport system management measures.Many junctions particularly on Madhya Marg, Himalaya Marg, Dakshin Marg, Jan Marg, Purv Marg, Udyogpath etc. have very high traffic volumes and most of the junctions with rotaries have exceeded their capacity. With expected growth of traffic, the situation at these junctions is likely to deteriorate fast.Parking is assuming critical dimensions in Chandigarh particularly in Sector 17. Parking facilities need to be augmented substantially. Hence there is a need for an alternative mode of transportation to reduce the congestion of parking spaces.

METRO IN CITY

RITES suggests seven corridors

Amit Roy
Chandigarh, October 14

SEVEN metro transport corridors will connect the city with neighbouring areas, RITES, a central government enterprise, has said in its inception report.

The report submitted to the UT administration has also suggested measures to improve traffic management, junction improvement plans, planning of pedestrian facilities and parking demand management.

The report has identified seven major MRT transport corridors proposed to be implemented in three phases for Chandigarh Urban complex on the basis of future traffic assignment and land use.

As per the report, commercial areas with high parking turnover and low parking duration may require paid parking facilities. Areas with acute parking congestion and space constraint would require banning/time constraint on certain classes of vehicles as a measure of comparable intensities.

The report said corridors with heavy 'across' pedestrian flow will be identified. Zebra crossing at major junctions will be provided to ensure pedestrian safety. The short-term plan will be prepared with a five years' perspective. The present traffic as assessed from primary traffic surveys will be projected for the next five years on the basis of established growth trends.

The proposals shall also have a short-term traffic management plan, including one for pedestrian, cyclists and freight movement.

Junction improvement plans will include a detailed analysis of existing physical and traffic characteristics of the junction and development of alternative improvement options.

Necessary traffic management measures will also be examined for junctions, including turning restrictions in general or specific to certain nodes or during certain hours of the day.

It is proposed to plan the necessary pedestrian facilities for 'along' as will as 'across' movement of pedestrians on all major corridors and junctions. The basic aim shall be to reduce pedestrian conflicts with vehicular traffic to the minimum.

Efforts will also be made to ensure that pedestrians are not exposed to safety risks. The control of access on major arterials will also be suggested to reduce pedestrian vehicular conflict. Zebra markings will be recommended at appropriate places where 'across' pedestrian traffic is significant. amit.roy@live.com

A report of RITES identifies seven major MRT transport corridors proposed to be implemented in three phases for Chandigarh Urban complex on basis of future traffic assignment and land use

Figure 2. Chandigarh metro project with 7 corridors

Corridor 1: Khuda Lahora — IT Park [16.31 km]

Corridor 2: Motor Market — Maheshpur [7.8 km]

Corridor 3: Sukhna Lake — S.A.S. Nagar Railway Station [16.86 km]

Corridor 4: Dakshin Marg — Airport

Corridor 5: IT-Park — S.A.S. Narage Sector 105

Corridor 6: Dadu Majra — Mohali Sector 93

Corridor 7: Zirakpur — Panchkula Bus Terminal

Another important issue is the planning of high rise buildings in the city. Many debates against all of these innovations came up in the last years, it seems that people from Chandigarh are too much focused on the heritage status of the city. The biggest strength of Chandigarh is its planned development and architectural brilliance from a city's layout perspective (Kapoor, 2010).

Profesor Kiran Joshi[4] has published two very interesting books about Chandigarh which are very important documents today giving us informations on one site about the Aestetic and Urban Controls and about the Architectural Heritage of the city. *Her opinion is: " that the area of Aestetic Controls in the City's design is very important and with dynamics of growth, aspiration of people and a host of other factors the controls have been under attack both for change as well as relaxation [...] at no stage in the growth of human settlement can one predict its total or ultimate form. Development takes place in space and time and is subject to social, economic, political, technological and, perhaps, a host of other stresses [...] The purpose of "Urban controls" or Urban Regulatory Measures "is, then, to create a system of development which will permit the* realization of the form both physical and non physical) in which urban settlementsare conceived and which will give the designers hand the strength of law (Joshi, 2002, p.23).

The second one is a documentation about the Architectural Heritage of the city (Joshi,1999) Le Corbusier, Pierre Jeanneret, Maxwell Frey and Jane Drew came to

[4] Kiran Joshi, retired lecturer and researcher at Chandigarh College of Architecture, today Prof. & Head, Chitkara Centre for Advanced Studies in Architecture. She is one of the most intellectual people in the Chandigarh architectural and art scene and a high member of society linked with the foundation of Le Corbusier in Paris.

India in the beginning of the 60' s, without any idea about the actual socio political situation of India and his traditional way of living and housing with the architectural differences in between regions and plural influences by different colonies and coming to the subcontinent during his long never ending past. Very soon they had to come up with a concept of building which has been adopted all around the city in every sector in the same way. Sometimes people visiting the city are comenting that everything is looking the same monotnous and boring way "boxes everywhere".Of course it is is difficult to judge this architectural heritage with the eyes of today, but we should understand what that time was happening to Punjab and how far the architectural knowledge and conscience was there in these days.It was a great experiment which up to today is one of the most beautiful cities in the world. His architectural expression is unique and every city today has a problem with development and growth. That the Architectural and urban controls are strict this is not only a phenomena we can find in Chandigarh but also all around the world, especially in old cities which are presenting an architectural hertitage which should be not mixed up with high rise buildings which are having a total different architectural expression. Very interesting research document is the Chandigarh Master Plan – 2031 Draft (Government of India, 2013). under 19.7 we can understand that the restriction that the entire city will be retained to low rise and density will not work out. In this document the GOI Ministries are talking about medium rise and medium density. This is an interesting point, which can be considered as a solution in between high rise and low rise.

India is growing very fast in the last decades and his metropolitain cities like New Dehli, Mumbai, Kolkata, Pune, Bangalore, Ahmedebad and Hyderabad, but actually we should not forget the aim why Chandigarh has been planned and the way it has been planned. The city is growing in population and cars and transportation is a very important topic, it might be more important than others at the moment. The actual situation in the city is that buses are running from sector to sector connecting almost all parts of the city. The BRTS system would be a better option for Chandigarh and his citizens. Chandigarh is not a big city, for the average of

population not at all considerable as metro city, but it is an important city for many aspects.The expenses to built a metro in Chandigarh would be to high in my opinion and of no need at the moment. Well for the cost of building one metro corridor, you could build 7 BRT corridors and if they have x amount of money, it would be wiser to spend it on building 7 BRT corridors than 1 metro corridor. Chandigarh doesn't have the possibility to finance such a large scale project. BRTS is a more cost-effective option that can be implemented much sooner. One interesting article from the Financial express underlines the statement before referring to Chandigarh being not considered a metro city. A study of AEP[5] revealed that Chandigarh still lacks on various parameters when compared to Pune, Ahmedabad and Lucknow.

In conclusion the BRTS would be much better for Chandigarh than a metro. It would be much cheaper and would be implemented much faster, since metro requires people to be rehabilitated for stations and private properties to be bought. The BRT is implemented just on roads, which does not require private properties,

[5] The (Assocham Eco Pulse) AEP Study on "The 7th emerging metro city in India" analysed four tier-II cities including Pune, Ahmedabad, Lucknow and Chandigarh ranking them on eight parameters required for acquiring the status of metro city. They include social infrastructure, infrastructure availability, real estate cost and availability, transportation facility (connectivity), presence of quality educational institutes, employment opportunity, facility of financial services and business environment. As per the analysis, Pune occupied first position though it needs to improve on transportation, social infrastructure and financial services. Ahmedabad was the second most potential city providing good infrastructure and facilities and connectivity. Lucknow was placed with third rank as it needs to pick up on infrastructure, business environment and social infrastructure. Chandigarh, the smallest city among the four in terms of area and population was ranked at the fourth position though it was ranked foremost in financial services and business environment. The AEP study said Pune was set to join the league of six metropolitan cities in India with the development pace catching up fast in providing infrastructure facilities, friendly business environment, education avenues and employment opportunities. At present, there are six metro cities in India including Delhi, Mumbai, Chennai, Kolkata, Bangalore and Hyderabad. The rising appeal of Pune is evident from its highest real estate prices and maximum population among the other upcoming cities. Among the four cities, Ahmedabad occupied first rank on the parameter of social infrastructure. The city with literacy rate of 79.89% has high grade institutes like IIM, NID, NIFT, EDII etc. Lucknow with a literacy rate of 83.5% and presence of quality educational institutes including IIM, SGPGIMS etc. was placed at second position. Both Pune and Chandigarh were assigned 3rd positions respectively on the social infrastructure parameter. (Financial Express, Charanijit Ahuja, Chandigarh legs in race for metro status, October 31st, 2008)

but in a further future project metro should be not totally excluded; both systems can be more effective than only one.

Surrinder Bhaga, chairperson of IIA [6] (Indian Institute of Architects) says:" *Chandigarh Metro project will not be financially viable till 2051 due to low PHPDT*[7] *and for Chandigarh Metro project , the cross system of the network being proposed by the DMRC*[8] *report is not suitable for Chandigarh region. Moreover, this is one of the most inefficient mass rapid transport systems (MRTS) systems in the world. This topic of network has hardly been used in any mega city of the world."*

Considering the urban and architectural controls of Chandigarh the city is growing by cars but the population is already restricted by the high prizes of properties in the city.

Mohalli and Panchkulla have been planned for this purpose and people who are moving to Chandigarh are buying properties in the satellite towns. If Chandigarh is considered as a working city and the transportation system will be improved people will defiantly use the public transport and cars will be used less. The actual state of the tree plantation and the high width of the roads is a big help to filter the smog. Chandigarh is still considered the greenest and cleanest city in India.

So with all this problems the city is facing today we have answered the often questioned issue, if Chandigarh is a well planned city or not. The architecture field in India is not very explored and new faculties like urban and town planning are coming up in the last decade as master courses in India. Chandigarh is a place where many architects and urban planner are at home and they have been trained at the moment when Chandigarh has been under construction. Hard architectural research work and many initiatives and organisations have been founded in the last years in the city. Chandigarh is a great moment in the Indian architectural experience and decisions are not easy to take in a city where byelaws, architectural and urban controls have to be followed, especially with the guidance of the

[7] PHPDT: peak-direction traffic

[8] DMRC: Dehli Metro Rail Cooperation

Chandigarh Heritage Conservation Committee and his implications which are going to be introduced to the upcoming Master Plan.

Maybe we should concentrate more on the conservation of the city[9], especially of his buildings, using the money for this purpose instead of wasting money for a metro at the moment. It is more efficient to improve first of all the infrastructure we already have and than if there will be a serious need we can introduce the already studied strategies to introduce metro in Chandigarh.

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MONARTO
Learning from the Past

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Abstract

The South Australian 'new town' of Monarto was conceived in the late 1960s by a bold and visionary state government; it soon became a key part of a Federal government program of greenfield cities designed to counter overpopulation of the already overlarge 19th century cities of Australia.

Comprehensive research and development was undertaken throughout the early 1970s – including extensive community dialogue and research into best practice design for education, amenity provision, landscaping, planning – to render Monarto an attractive city, particularly for the middle-class public servants who would form its core population.

Two townscape plans, showcasing very different conceptions for the city's character, were prepared: one by the German/Australian Boris Kazanski, the other by the Australian John Andrews, whose practice had hitherto been largely in North America. Key players in both designs had recent experience in the Middle East, the UK and the USA.

Either of the two events which killed the Monarto scheme – the election of a new national government antipathetic to the new town program, and revision of population forecasts – could have been its death knell. Today, there is a general cynicism in retellings or analyses of the Monarto plan; critics suggest it was a political tool, rather than a serious proposal. Such an assessment – in the opinion of the authors, in itself unlikely - disregards recognition of Monarto's value as a proving ground for ideas in the 1970s when ecological, environmental and heritage issues gained traction.

Key players in the plan (notably but not exclusively Andrews and Kazanski themselves) have hitherto been silent on their involvement in Monarto; this paper draws on new information from both men and others, as well as archival material previously unexamined by academic researchers. It demonstrates that Monarto was a valid experiment in new city design and a project which can be regarded as a commentary on international new town practice.

Keywords: new town, image, hub, energy, environment

Introduction

The post-war dream of the political establishment – on both sides of politics – in the often-progressive state of South Australia was to establish a resilient manufacturing base founded in large part on the introduction of new migrant populations.

In pursuit of this goal, the state's government – initially during the tenure of the conservative premier Thomas Playford (1896-1981) – created opportunities to bring together industry and workers in arrangements ostensibly beneficial to both. The most impressive among these was Elizabeth: a city just beyond the fringe of the state capital Adelaide.

By the mid-1960s Elizabeth's social problems, which would in later years come to define it for many critics, were regarded as little more than teething troubles. It was unsurprising, then, that when State Labor Party leader Don Dunstan (1926-1999) began as South Australian premier in 1970 – a charismatic leader whose innovation and boldness would far outstrip Playford's – he would consider a second new town to be an appropriate investment in his state's future.

Whereas Playford's Elizabeth was a proactive measure, Dunstan's new town was reactive: a response to the threat of overpopulation of Adelaide. The 'Murray New Town' envisaged by Dunstan was soon renamed Monarto. Co-opted into the progressive Federal Labor government's ambitious but poorly plotted new cities project, the legacy of Monarto – which was to be suspended, then abandoned, before the end of the 1970s – is primarily in the many investigations, design projects, reports and examinations completed in pursuit of its implementation. In thinking through the stages of conceptualisation and planning, as well as the sequence of agents involved, this study situates Monarto within a more complex national and international urban dialogue than has previously been acknowledged.

This paper draws on new research comprising interviews with key participants and archival material to track three strands of thought: about urban planning

and discourse in Australia; the socio-political context within which Monarto developed; and the designs which gave the Monarto proposal apparently concrete form even as the demographic and political drivers for it dissolved away.[1]

A Monarto narrative

In Australian urban discourse Monarto has become a trope for the supposed profligacy of Fabian planning and state intervention. By the time of the project's official demise in 1979, costs had totalled $30 million, much of which was Federal funding delivered under the Whitlam Labor government's New Cities programs. Rumours soon circulated that Monarto had been nothing more than a political stunt to shift thousands of apparently left wing voters to a traditionally conservative rural electorate, until finally the broad suspicion that it was never intended to be built became attached to its memory (Wanna, 1982; Forster 1990). The truth is far more complex. One effect of the political narrative of Monarto was to deflect attention away from a closer study of contemporary planning processes, and to enable the misconception that the state-funded new city of Monarto was centrally and homogenously planned. Monarto was in fact worked on by a sequence of national and international consultants and associates that included: Adelaide engineers Pak-Poy, John Andrews International, the Cologne-based Australian-born architect Boris Kazanski, German architect and engineer Rolf Gutbrod and British planners Shankland Cox. While the city was never built the project nonetheless operated as a fascinating, if at times discordant, creative and intellectual interchange.

Rationale for Monarto lay in a 1966 report predicting Adelaide's population of 800,000 would surge to one and a half million by the year 2000. '*They wanted to stop the big sprawl. It was just sprawling, sprawling to the southern suburbs, virtually everywhere, to the foothills, and then the services were extended, and the Government quite rightly thought we should look at an alternative.*' (Kazanski, personal comment) By the early 1970s the State Labor Party was

[1] Interviews regarding Monarto were conducted by the authors with John Andrews in April and December 2013, with Boris Kazanski in February 2014, and Ron Danvers, Alan Hutchings, Max Hipkins & Charles Bosel in March 2014.

leading the drive for a new town with Raymond Broomhill, Minister for Agriculture, speaking out about the urgent need for Adelaide to *'establish another major satellite city.'* (Notes, Ward papers.)

There were fears that Adelaide's infrastructure would not cope and that sprawl would subsume arable lands to the east of the city supporting the increasingly valuable wine industry. The new city was intended to draw away 200,000 residents (Forster and MacCaskill 2007, p. 95). Following Dunstan's victory in the 1970 State elections, the Murray New Town Steering Committee was established. Chaired by Director of Planning Stuart Hart, the Committee included Minister Broomhill and the influential bureaucrat Robert Bakewell, head of the Premier's Department, and was charged with the task of undertaking preliminary international research on social policy and environmental impacts and issues. (Britton-Jones, 2007; Danvers, personal comment)

Following a broad decision to locate the new town to the north west of Adelaide in the Murray region, intense lobbying was undertaken by very willing Murray towns, districts, as well as advocate bodies such as the Murray Valley Development League which had long championed further development of the region. In a series of what according to Dunstan's chief of Staff, Peter Ward, were secret meetings, the Steering Committee chose a site of 15,200 acres near the township of Murray Bridge, 60 kilometres from Adelaide.

In March 1972 the Murray New Town Land Acquisition Act (later renamed the Monarto Land Acquisition Act) was passed. It is not known how farmers at Monarto received the news, but forced acquisition would have a lasting destructive effect on this small community and prove a troubling legacy.

While an analysis of the suitability of the new city's site was undertaken by Pak-Poy, environmentally it was a curious choice, located in the semi-arid mallee, 11 kilometres from the only major waterway of the Murray River. Sheep farming had stripped it of native vegetation and topographically it alternated between undulating and flat. The climate was extreme by Australian standards, with temperatures from subzero lows in winter to summer heat waves of over 40 degrees. The site selection defied the expert advice of town planners such as

Amos Rapoport, in whose opinion distinguishing topographical features were essential to the location of a new town (Rapoport 1972). Shankland Cox partner Charles Bosel has noted that it would not have been the site selected had they been involved from the beginning (Bosel, personal comment). But the challenging environmental conditions would later strongly engage the interest of architect John Andrews. Moreover, Monarto's most visible legacy would be in revegetation: by 1976, 415,000 trees had been planted (Monarto Development Commission, Annual Report 1976, Ward papers). The Steering Committee also saw heritage as significant. Landscape architect Ron Danvers and heritage consultant John Dallwitz were recruited to collate and catalogue abandoned farming machinery from the acquired farms, with a view to establishing a folk museum.

Danvers brought a European perspective to the project. He had recently returned from Florence where he worked in the neo-avant-garde office of Superstudio, best remembered for its politically-motivated speculative designs. Its visualisation of the endplay of sprawl, the Continuous City, a vast grid network covering the planet, resonated with Danvers. Back home, he was particularly concerned that Monarto should not adopt a completely dispersed model in the manner of the contemporaneous British new town of Milton Keynes such as (he believed) was being adopted at another Australian new town experiment of the period, Albury-Wodonga (Danvers, personal comment).

Through 1972 the Premier was negotiating with the young Adelaide architect and urban designer Boris Kazanski to produce design principles for Monarto with a focus on the town centre and more generally operate as the State Urban Design Consultant. The selection of such a young man for this important role was unusual, especially as it was understood that Kazanski would do the bulk of the work on Monarto from his studio in Cologne. Yet Kazanski, as Dunstan well knew, could also bring to the project a wealth of knowledge through intriguing international connections. He was a graduate of the architecture program at the University of Adelaide, but left for Europe soon after completing his studies in the early 1960s. Somewhat unusually for Australians of his generation – for whom overseas experience generally meant the UK or other English-speaking

environs – this led to a life and practice in Germany, a country with which he had no prior link. When Kazanski returned to Adelaide in 1974 he brought with him developed connections with the innovative Berlin architect Rolf Gutbrod (1910-1999; best known as designer of the West German pavilion at Montreal's Expo 67), and also with the Rome atelier of Pier Luigi Nervi, where he had worked from 1968 to 1970.

It was because of these European connections (and no doubt also because of his local origins and friendship with Dunstan) that Kazanski was invited to become advisor on urban design to the South Australian state government. Kazanski in turn engaged others who reinforced the view that Monarto should have a clearly identifiable centre, notably Gutbrod who accompanied Kazanski on a visit to the site: 'Rolf was just fascinated. He was over 65. He was fascinated because he had also built in Mecca. That's why I brought him in; to convince the Government to actually design physical buildings to exist in such an environment requires a certain finesse.' (Kazanski, personal comment)

While Gutbrod's experience in the Middle East was considered as relevant to the relatively arid climate of Monarto, his work on major projects like his pavilion at Montreal and the later Mecca convention centre also gave him authority. Both of these projects were done with Frei Otto; both featured dramatic tensile roofs. But they were not projects likely to have relevance to a dispersed, low-density urban paradigm.

Kazanski also recommended the appointment of the British planning consultants Shankland Cox. While this firm was well established in British consultancy work in the 1960s, Kazanski recalls that he had become familiar with them through holidaying in Split, in Yugoslavia, and seeing the work the firm had done there on the conservation of the old town. There he befriended Shankland Cox partner Charles Bosel, another Australian.

As Ward would later admit, Kazanski's 'brief was too broad', and his ill-defined role was undermined by the vast bureaucracy that Monarto spawned. In September 1973, the same month that Kazanski was officially appointed, the State Government passed the Monarto Development Commission Act. With

architect Tony Richardson as general manager, the new Commission set about implementing the new town through eight divisions including town planning, architecture, and social planning.

By late 1974 the relationship between the Commission and Kazanski had become unworkable. In Ward's opinion Richardson's ambitions had led to *'a remarkable growth in the Commission's bureaucracy,'* noting that *'the situation appears to have become a classic one of too many experts with too many axes to grind.'* (Letter, Ward to Dunstan, Ward papers) Generational conflict was certainly one unacknowledged factor in Kazanski's deteriorating relationship with the Commission; typified by an argument the young architect had with the Commission's Director of Town Planning Alan Hutchings over an 11 kilometre water pipeline which Kazanski wanted to paint as a snake (Hutchings personal comment).

For periods when he was in Adelaide, Kazanski shared an open plan office with Shankland Cox and the Commission's Town Planning Division. Kazanski liked to play music by Pink Floyd loudly as he worked: the group's *Dark Side of the Moon* had been released in early 1973. He also covered the office with a Monarto logo he had specially designed, and it quickly became an 'us and them type of arrangement,' Shankland Cox planner Max Hipkins recalls. However, the much more significant and unresolvable conflict between Kazanski and the Commission was over the design of the city centre.

Design

While Shankland Cox led the planning of Monarto's broad urban outline, the project took on apparent form in two proposals for its urban core. The first of these was by Kazanski, and the second by a slightly older Australian architect with recent experience in North America, John Andrews. Other designers contributed to Monarto's development, but Kazanski and Andrews gave Monarto a set of images by which it circulated in design discourse, and which also made apparently concrete its ambitions for environmental and social innovation.

It was Graeme Shankland who first pressed upon Kazanski the significance of having a city focal point. Rapoport also emphasised this, suggesting that '*It may now be possible to discover, or at least get some inkling into, the appropriate images for the centre and the major symbolic elements as well as the overall quality of the town. This would give the new town a flying start….'* (Rapoport, 1972, p.15)

The city centre Kazanski and his team proposed was formed around an artificial lake. It featured a commercial spine on its western shore, with office areas, overlaid with medium density housing which extended south and north, and to the eastern shore of the lake. The first version of this appears in a report by Kazanski, Shankland Cox, and Gutbrod, *'Concept Plan for Monarto'*, dated August 1974. Locations are identified for public spaces, a hospital, tertiary education and so on, and most notably for a feature called the *'Monarto Hub'*. The Hub is described as integrating *'the functions of science, place and fun'*. In two later reports, dated February 1975, the axes of this central area are reoriented, and the Hub is relocated. However, the images of the Hub building do not change. It is only in the Hub that any element of Kazanski's Monarto scheme moves beyond the diagrammatic. Kazanski subsequently arranged for this design, and for the earlier central city concept to which it corresponded, to be published in the leading Italian design journal, *Domus* (no 545, April 1975).

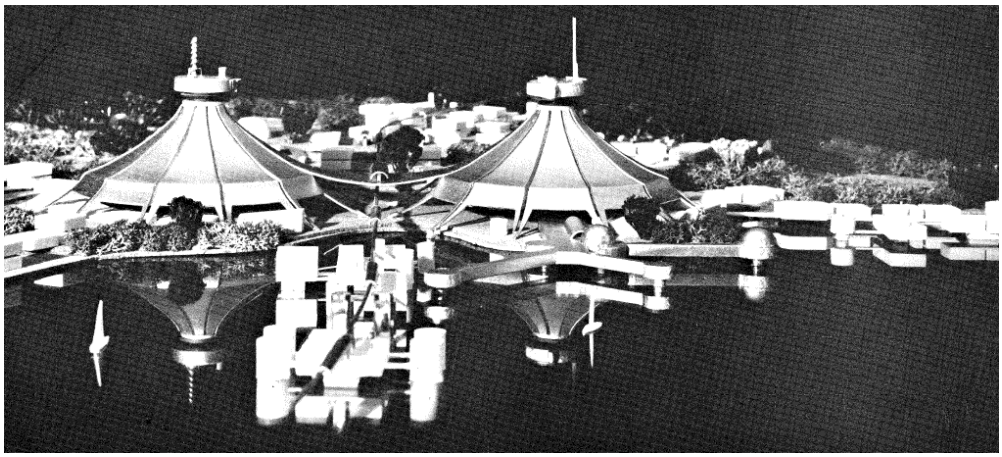

Figure 1. Kazanski's 'Honky Tonky' entertainment precinct the Monarto Hub. Kazanski and Associates et al (1974) *Monarto Concept Plan* Adelaide, Monarto Development Commission.

Kazanski's Hub met the expectation that South Australia's new city should have an element at its core that would produce a strong image, an attractor, something that would give Monarto a life of its own and thus preclude the diffuseness that was at the time feared to mar Albury-Wodonga and Canberra's expansion. This would also preclude Monarto from becoming a dormitory extension of Adelaide. The Hub would introduce into the town what Hugh Stretton – using a somewhat arcane term, but one which nevertheless evoked a spirit of popular yet vigorous entertainment – called a 'Honky-Tonk' element. The most extended account of the Hub is that published in *Domus*:

> This exhibition and scientific research centre, and hub of social life and public entertainment should act as a visual and mental 'magnet' to focus attention of the new city being planned…. It will be recognizable from a distance and visible from many points. It will be linked to the city centre by public transport (later by a monorail) and with Adelaide by a helicopter service. The Monarto Hub's architectural appearance is that of two enormous circular tents. It will have three main functions: 1, science function (exhibitions, congresses); 2, place function (a place where communal activities are grouped: theatre, forum, cinema, music); 3, 'fun' (boating, restaurant, coffee shop, aquarium, pubs).

The concept of the Hub's role as a science centre appears to have originated with the Adelaide scientist Earle Hackett, who had lobbied Dunstan on the benefits of establishing such a place in the state. But programmatic aspects of the Hub otherwise are vague. Far more concrete is the Hub's external appearance. The gigantic tent forms allude to exposition architecture (Gutbrod's Montreal project), and also connect the Hub to the open-ended, high tech architectural investigations of the 1960s: Archigram, Cedric Price, and so on. The proliferation of techish elements – antennae, helicopters, monorail – all refer to dynamism, change, flux. Even the kangaroo seen in the corner of one of the images in the *Domus* article is caught mid-jump. The Hub was to have been made more dynamic still by the projection of images on to the surfaces of its tensile roofs (Kazanski, personal comment).

Kazanski's project met with a cool reception. In particular, Hutchings objected to the scale of the Hub and its avant-garde, Archigram qualities which he deemed to be in conflict with the typical values of the Australians who would inhabit Monarto (Hutchings, 1989). More broadly, the oil-shocks that following the 1973 Arab-Israeli war had quickly given the high tech architectural fantasies of the 1960s a death knell. Presumably, criticism led Kazanski to rework his design for the central Monarto area, but he did so without abandoning his conception for the Hub.

John Andrews' involvement with Monarto coincides with the end of Kazanski's. While Kazanski had a direct contractual relationship with the South Australian Government, Andrews worked as a consultant to the Monarto Development Commission. The Commission's director of architecture was Hank Den-Ouden, a Dutch architect who had previously been with the National Capital Development Commission (NCDC) in Canberra. Having achieved considerable success in Canada, Andrews had in 1969 been drawn back to Australia to design the Cameron Offices, a project that would house up to 4000 employees of the federal bureaucracy in a complex that was part of an NCDC plan for a new district of the federal capital. The Cameron program of rehousing a large number of federal bureaucrats was closely followed by the plan to relocate parts of the South Australian state bureaucracy at Monarto.

Like Kazanski's, Andrews' approach to architecture entailed a strong interest in its urban aspects. While he belonged to a slightly older generation than Kazanski, his Canadian experience in the 1960s also prepared him for the circumspect approaches to architecture that developed after the energy crises of the early 1970s which occurred just as Monarto was getting under way. After studying at the University of Sydney, in 1957/58 Andrews undertook an M.Arch. at Harvard under Josep Lluis Sert. Reflecting the directions of the *Congrès internationaux d'architecture moderne* under his presidency from 1947 to 1956, Sert had recalibrated the Harvard M.Arch. to focus on the urban and monumental dimensions of architecture. Thus, Andrews' Harvard-influenced approach to architecture as an urban discipline had roots predating those of Kazanski's *architecture/urbanisme ludique* which came instead from the counter-

cultural moment of the 1960s. Both nevertheless disdained the diffuse urban reality typical of Australian cities.

Andrews' breakthrough project was the design for Scarborough College, a suburban campus for the University of Toronto completed in 1965. Widely published, it brought him to the attention of the important Australian architect and critic Robin Boyd (Boyd, 1967, p43), an advisor to the NCDC. Toronto's harsh winters had made Andrews mindful of climatic aspects of design, but at Scarborough his collaboration with landscape architect Michael Hough (Taylor & Andrews, 1982, p32) connected him with the thinking of a key advocate for an environmentally focussed approach to design, Ian McHarg. Hough was to be considered one of McHarg's most influential students (Spirn, 2000, p113). A study by the Andrews office of the Palm Beach area north of Sydney, drafted in March 1975 (John Andrews International Pty. Ltd., 1975, p6) – coinciding exactly with their work on Monarto – draws explicitly and heavily on McHarg's seminal *Design with Nature,* published in 1969.

Andrews' scheme for central Monarto - on which he collaborated with another architect, Philip Cox - shared several attributes with Kazanski's. A central circulation spine organised pedestrian movement, buildings for offices, shops and other commercial amenities, schools and facilities for tertiary education. Focussed on a tower at one end (consistent with Rapoport's call for a major symbolic element), at the other it terminated at the shore of an artificial lake, a feature shared with the Kazanski project. As in the Kazanski scheme, medium density housing overlapped the commercial and office areas, and spread around the lake.

But otherwise the schemes and how they are presented are quite different. While Kazanski's focuses on the carnivalesque of his Monarto Hub, Andrews' instead concentrates on a schematic outline of buildings for the work-a-day world of government departments, disposed repetitively in 2 and 3 storey wings around square courtyards, with private apartments at upper levels. These are not unlike courtyard buildings proposed by Kazanski, but the Andrews courtyards feature a series of cascading pools to provide both physical cooling

and a psychological sense of coolness. Moreover, the Andrews buildings are linked by a mat-plan/tessellation geometry that can conceptually continue indefinitely, giving them an overall urban order and aligning them with that of the main urban axis in his scheme. They step down the hillside, with the contours of the hill then reflected abstractly in the complex's staggered roofline.[2]

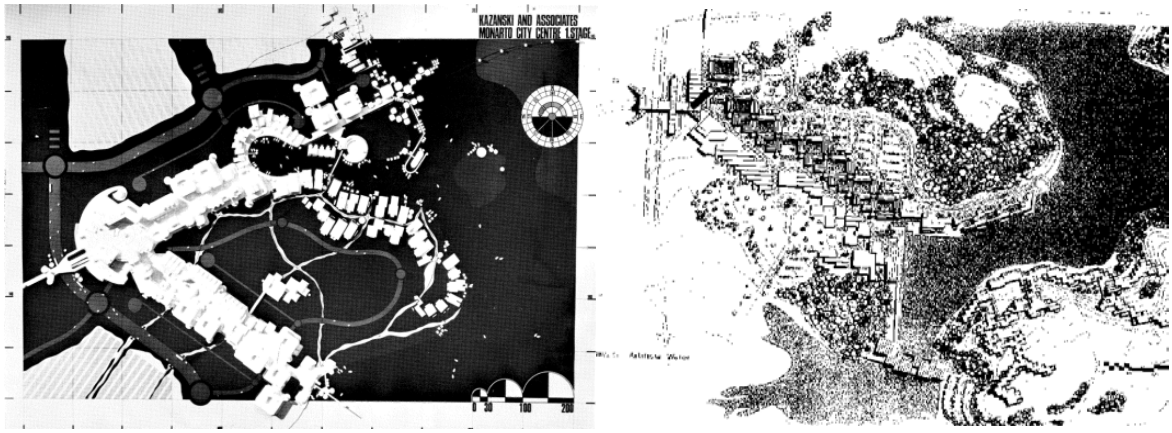

Figure 2. Kazanski's and Andrews' differing conceptions of the Monarto City Centre, from 1974 and 1975 respectively. Both centre on waterfront living. The Kazanski project shows the second layout he proposed.

While Kazanski's Hub design looks back to the social inquiry and inventiveness of the neo-avant garde of the 1960s, Andrews' looks forward to energy and environmental consciousness. In their preliminary report of January 1975, 'Potentials of Monarto: First Impressions', Andrews and Cox comment: 'It is also considered that a strong response to the world wide problem of energy shortage would be appropriate, avoiding wastefulness in the systems of the city by utilizing natural solar and wind energy, recycling waste or reconverting it to energy, providing minimum energy-consumptive alternatives for personal movement, etc.' These views corresponded to Den-Ouden's (Den-Ouden,1975). An unattributed and undated document, affixed in Andrews' personal archive to

[2] Such an approach is also suggested in the image of the Kazanski project that appears on the cover of the report 'Monarto Design Studies', February 1972; but this image does not include the Hub whose scale would have been visually dominant.

a later Monarto design report by his office, addresses several related issues: building orientation; natural ventilation; thermal storage; 'energy content' of construction materials; solar and wind energy. It also refers to a 'central energy tower', the landmark at one end of the Andrews project. In the last known submission to the Monarto Development Commission from John Andrews International, the document *Monarto City Centre Stage One Design Proposal* (June 1975), the tower is described as taking 'advantage of the year round energy availability of natural resources such as wind, solar energy and water'. But the technologies through which this would occur are not specified. It was apparently also envisaged that the fall of water from the monumental tower to the lake would somehow power an 'electric trolley' that would run the length of the pedestrian axis from tower to lake shore. While Andrews trusted the abilities of the energy consultant in his Monarto team, the engineer Don Thomas with whom he had already worked at Cameron offices, the idea of the 'energy tower' entailed a technological leap of faith that contributed to Andrews' sense that Monarto was unlikely to eventuate (Andrews, personal comment).

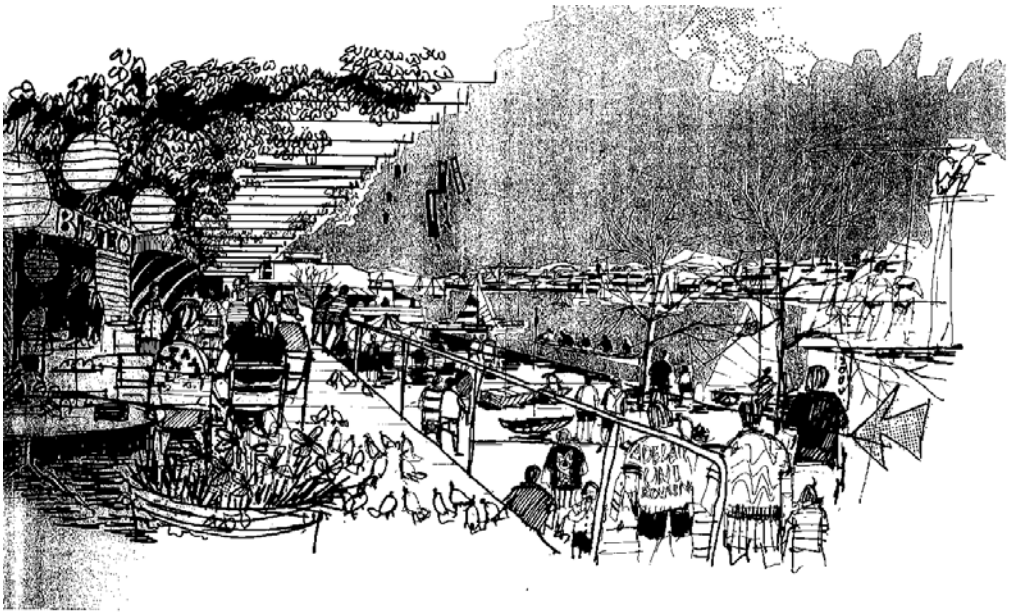

Figure 3. Conception of lakeside life at Monarto. From *Monarto City Centre Stage One Design Proposal* (1975) no page numbers

Learning from Monarto?

As mentioned near the start of this paper, it was not long after Monarto's demise before a narrative emerged in Australian urban planning discourse that figured the Monarto project as either mere profligacy or a failed but cynical attempt to politically manipulate the South Australian electorate to the benefit of the Labor party. Or both. Certainly the tangible legacy left to the South Australian community by Monarto was mixed: a farming community dispossessed to no end, but also a re-vegetation program that achieved significant environmental amelioration.

There are however other less tangible legacies. South Australia's next new town proposal – the Multi-Function Polis project of the 1990s - was driven by a new wave of technological fantasy coupled with neo-liberal economics that saw nothing to learn from Labor experiments of a generation earlier. It, too, failed. But there are impacts at a less grandiose scale. The prospect of Monarto's being realised diminished from the middle of 1975. Even before the dismissal of Whitlam's federal Labor government in November 1975, the political will to fund Monarto was dissolving, although it was not until the State conservatives won power in 1979 that the project was officially abandoned. Nevertheless planning practice in the state was influenced through the late 1970s as staff at the Development Commission worked on smaller-scale and more immediate urban planning projects for other locations. The Commission's director of architecture, Den-Ouden, was to go on to write a series of planning guidelines for the State government on such issues as streetscape design, residential design, and urban tree planting, promoting good practice at grass roots level aimed at influencing townscape in such growth areas in South Australia as the mining town of Roxby Downs.

Individual careers also developed through Monarto. In another paper we have already examined the place of Andrews' Monarto work in the development of his architecture (Nichols, Grant and Walker, 2014). Kazanski and Shankland Cox's Monarto team each went on to undertake further planning work in arid locations – central Australia and Saudi Arabia – in a sense reciprocating the knowledge

that Gutbrod had brought to Monarto. Kazanski's grand ambitions for the Hub were never to be realised either at Monarto or elsewhere, but the environmental values – perhaps poorly grasped but nevertheless genuinely sought - that drove the Shankland Cox plan within which Kazanski's urban centre was elaborated were real, and stayed with figures like Hipkins, after the Monarto plug was pulled.

The projects and plans for Monarto index the multiple strands of urban thinking extant in professional circles in the 1970s and their encounter with the ecological and environmental concerns whose urgency was just becoming apparent. They also indicate how internationalised the design practices bearing on urban innovation and development had become.

Acknowledgments

Research on the architecture of John Andrews and his offices included in this paper is funded by an Australian Research Council Discovery Grant, Paul Walker lead investigator.

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